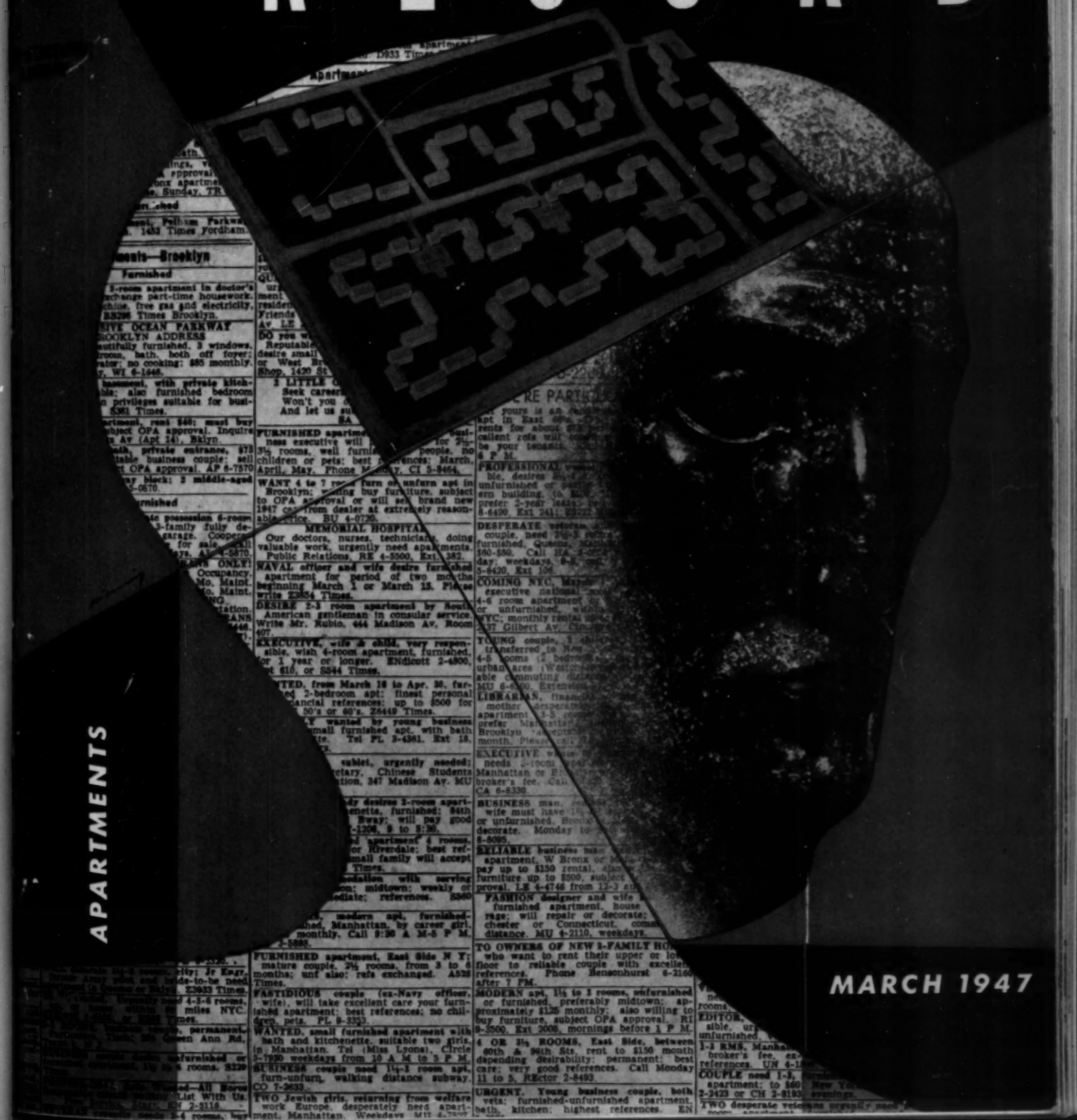
ARCHITECTURAL

RECORD



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Entered as second-class matter at the Post Office, Concord, N. H., under the Act of March 3, 1879.

VOL. 101 • NO. 3 March 1947

ARCHITECTURAL RECORD

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Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York 18, N. Y. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulations and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, $4.50 the year, $7.50 for two years, $9 for three years; elsewhere, $6.50 the year, $11.50 for two years, $15 for three years. Single copy, $1. Circulation Manager, Marshall T. Ginn. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalogs, Dodge Reports & Dodge Statistical Research Service.

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COVER: Head by William Zorach, courtesy The Downtown Gallery; plot plan of Jersey Victory Homes, Holden McLaughlin & Associates, Architects

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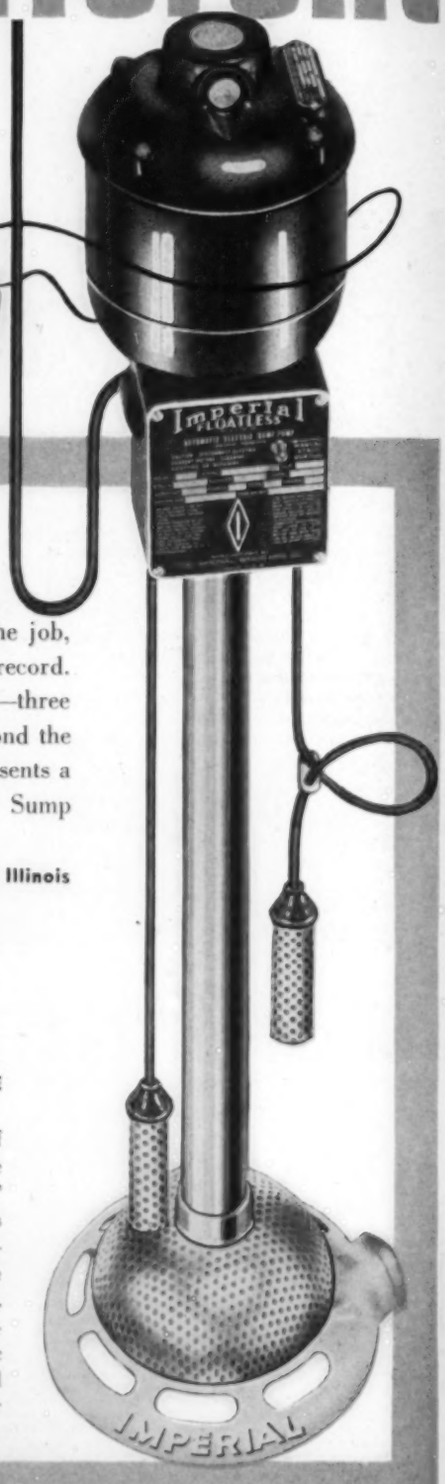

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THE RECORD REPORTS

Senate Small Business Committee Considers Housing Meetings on Housing Begin • Building Code Bulletin Issued • FHA Shifts Gears for More Rental Housing

A four-point program put forth by the Senate Small Business Committee epitomizes the housing problems pending before the Congress. In a sense it reflects the fact that, with the heavy chains of governmental controls expected to be lifted, the 1947 responsibility for homes will rest on industry — in sharp contrast to a year ago when the government sought and obtained emergency powers.

For the long range, however, the Committee stresses legislation similar to the unsuccessful 1946 Wagner-Ellender-Taft General Housing Bill. The other three points — for the immediate picture — emphasize (1) rental housing (construction, reconversion and re-use); (2) removal of impeding restrictions applied by government, industry or labor; and (3) measures to spur building of low-cost houses.

Other Suggestions Made

Since the Small Business Committee was reconstituted by the Senate in spite of the general paring down of Congressional Committees, weight attaches to certain other suggestions which it passes on to the units writing new housing laws. In brief, it wants to continue the limit on non-residential construction with priority for schools, stores, hospitals and other community facilities related to the new housing developments; it would abolish premium payments, maintain rent controls only on existing units, have the federal government stimulate private industry in low-rent multi-family building, provide 90 per cent guaranteed loans for mass-produced houses, speed up apprentice training programs, and continue export-import controls.

On a long-range housing program, which the Congress may or may not get to this year, the Small Business group's ideas are summarized as follows:

"We recommend that the Congress give immediate attention to the passage of legislation designed to accomplish the objectives of public low-rent housing, slum clearance, aid to rural housing, grants-in-aid to local communities for housing and planning studies; to develop formula for acquiring substandard areas by local communities and for reducing costs for sale or lease of such land for private or public housing; to liberalize lending powers of home loan bank boards and building and loan associations and other institutions through FHA incentives, to induce investment by private capital in large-scale housing."

Legislation Proposed

A variety of legislative proposals came tumbling in during the opening days of the Congress. These include a bill (H.R. 43) by Representative Celler to establish a national housing policy, a comprehensive 117-page measure touching on all phases of housing.

In his message on continuing the war powers, President Truman pointed out to Congress that VEHP powers continue until next January. "During the balance of 1947, I anticipate a further reduction in the use of these powers," he said, "but it will be necessary to continue some limits on construction and to continue assistance to the producers of some bottleneck materials. I understand that voluntary arrangements are being made with a number of producers to meet the needs of the building materials industries so that the use of allocation powers can be held to a minimum."

Portal Pay Suits Filed

The portal pay suits which swiftly accumulated after the famous Mt. Clemens Pottery decision include claims against industries allied with construction. For instance, early in the game, briefs were filed against lumber companies, covering time to and from lumber camps. Claims similarly were filed against other branches.

Congress wanted to sweep away all of the claims at once, but didn't know exactly how. The great danger was that, notwithstanding action by Congress, working men might sue anyway, winning on constitutional grounds. Hence most of the testimony tried to show that an amended law, a reinterpreted law or a completely new law would pass court muster.

Million Homes Foreseen

Meanwhile the general assumption in government and industry is that a million homes will go up in 1947. John W. Haynes, of the Commerce Department's Construction Division, goes so far as to say that "the construction and building materials fraternity are beginning the biggest year of all time" — $22 billion in all. He sees a "decrease in inefficiency" and a slackened advance in construction costs.

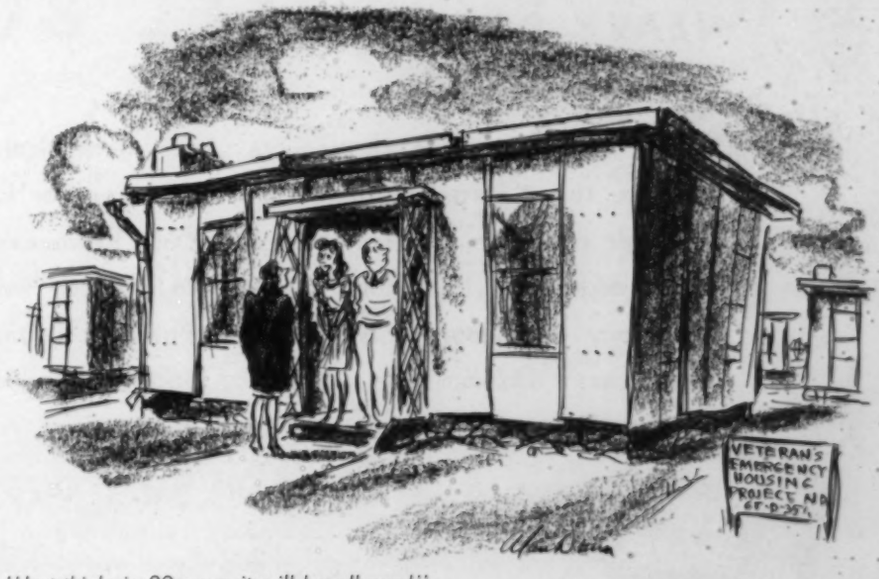
The National Association of Home Builders, anticipating a million houses before the year's end, says that "removal of many government controls in December has already aided home building and release of most of the remaining controls should make possible a further acceleration." It expects rental housing will be the big job. This ties in with the forecast made by Thomas S. Holden and Clyde Shute of the F. W. Dodge Corp. in the December ARCHITECTURAL RECORD (pp. 70–72).

It should be noted, too, that NHA counts on normal construction time being restored in most areas.

Nation-wide Meetings Held

Late in January there began a series of meetings all over the nation at which the building industry, local government and federal agency representatives discussed means to stimulate a large volume of rental housing through conversions and small and large new projects. Cooperative effort is being solicited from

(*Continued on page 10*)



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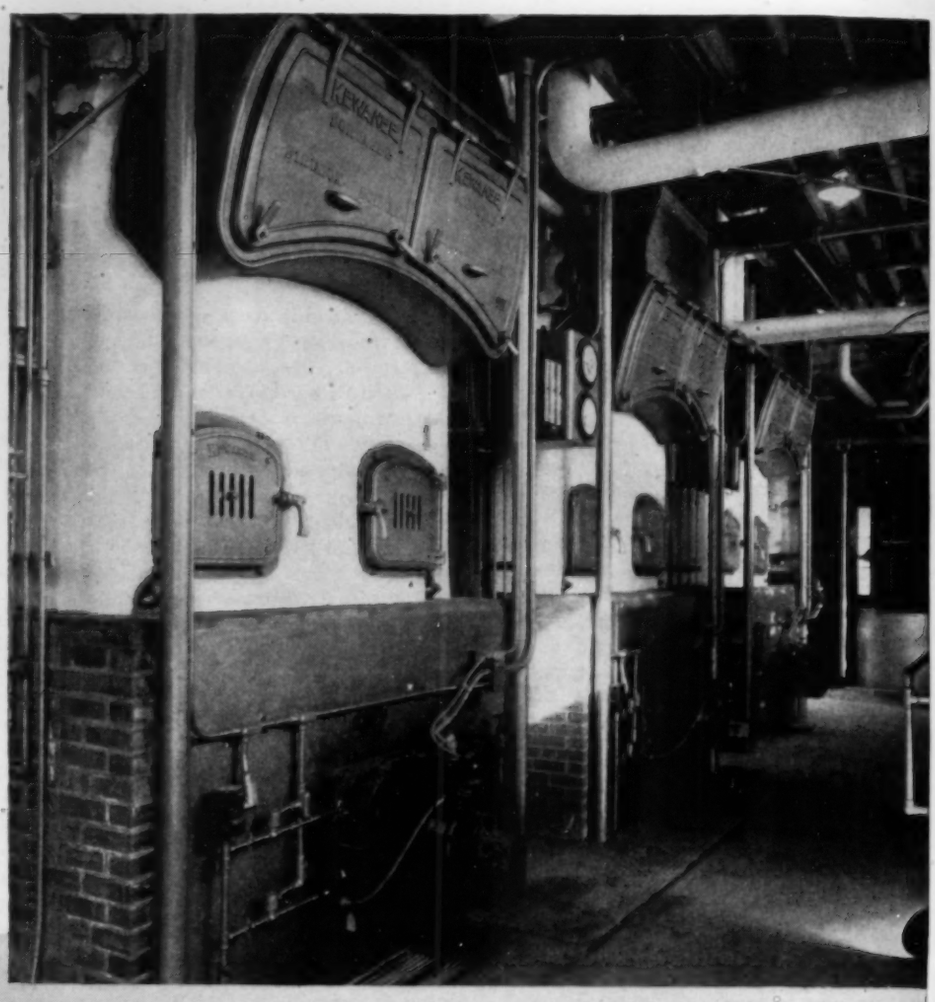

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THE RECORD REPORTS (*Continued from page 7*)

Princeton University's new library, scheduled for completion in June, '48. R. B. O'Connor and W. H. Kilham, Jr., Architects. (See ARCHITECTURAL RECORD, Jan. '47, pp. 99–101)

city officers on the questions of zoning, planning and building codes. Other phases under discussion include financial aids both private and governmental, site selection and development, streets, sewer and water supply, availability of stores and shopping centers, and labor supply. FHA technicians are provided to assist in setting up rental projects.

In a broad discussion of the municipal role in building for 1947, NHA Chief Raymond M. Foley told the January meeting of the U.S. Conference of Mayors of the need for building code revision and of the need for an inventory which "goes beyond zoning and building codes." Such an inventory, he advised, includes tax burdens, smoke, soot and noise abatement, general planning and neighborhood development as well as greater state and municipal participation in the cost of publicly-aided housing. He reported that 87 cities had taken action on their codes.

Code Bulletin Drafted

In connection with the 2000 or more building codes in the country, the National Bureau of Standards has come out with a revised bulletin entitled "Building Code Requirements for New Dwelling Construction." The recommendations made were developed by NHA along with the Standards Bureau and other government agencies, and are concerned chiefly with moderate size individual and multiple family dwellings of the type used under the veterans' program. Covered are design loads, fire protection, construction, construction requirements for masonry, wood, structural steel, etc. The publication is designed as a guide for local communities in changing their codes.

Rental Policy Changes

FHA has shifted its policy and procedures to encourage more rental housing. Its cost estimate system has been simplified to cut processing time on financing; it will allow mortgage terms to be readjusted; it will develop rental investment opportunities; it will seek to speed handling of wage determinations by the Department of Labor.

Concurrently, NHA Chief Foley has brought about the organization of an NHA Coordinating Council with representatives from the Department of Agriculture, Veterans Administration, RFC, Federal Deposit Insurance Corporation, and the Housing Expediter's office as well as NHA units.

In a move to improve housing statistics he recently called a conference of government and private industry authorities on housing.

Federal Findings Issued

As the government statisticians get around to shuffling their data on 1946, varying pictures come to light. For instance, the Commerce Department puts new construction at $10.1 billion, of which $7.8 was private and $2.2 public construction, $3.3 was private residential, $1.6 private industrial, and $0.8 privately-owned public utilities. The year's total at two-and-one-fifth times that of 1945 showed big percentage gains for warehouses, office and loft buildings, stores, restaurants and garages, public and private residential.

The Bureau of Labor Statistics expects 1947 expenditures for new construction to run 50 per cent more than 1946 with nonfarm home building claiming the greatest number of dollars. It warns, however, that the physical volume may not hit a record high "since it will take more dollars than in former years to pay for the necessary lumber, brick, wages, blueprints, etc."

BLS foresees more than 2½ million workers needed on the site of new con-

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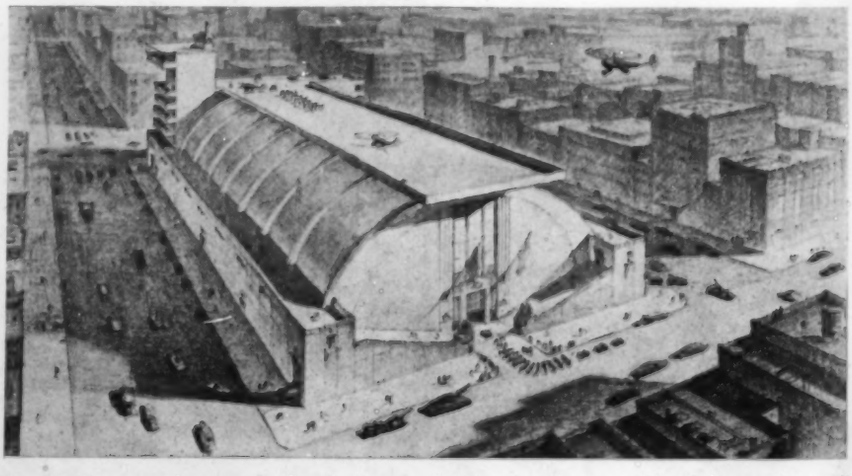

Proposed armory features rooftop helicopter field and underground base for combat unit

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A huge roof for helicopter operations and an underground bomb-proof base accommodating a complete National Guard combat unit are features of a proposed "Armory of Today," designed by James C. Mackenzie, of New York.

Plans for the underground base call for recreational as well as housing and feeding facilities for the troops; command posts, message centers, communications and briefing rooms; and areas for the fueling and maintenance of the unit's vehicles, including tanks and self-propelled guns.

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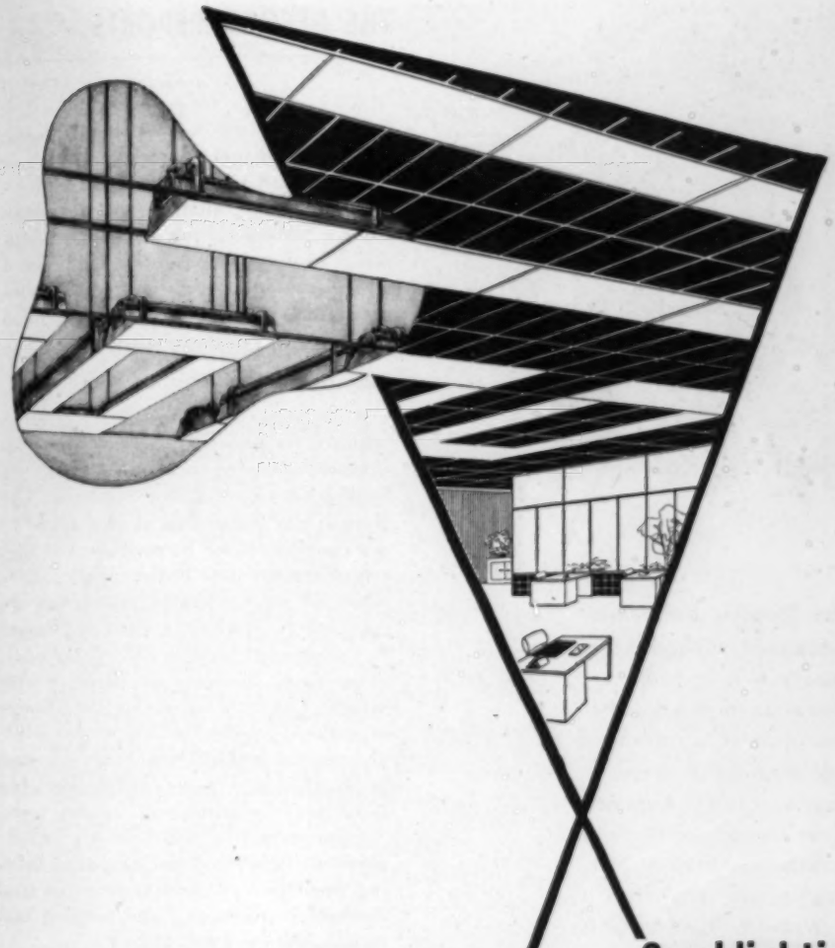

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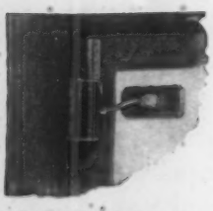
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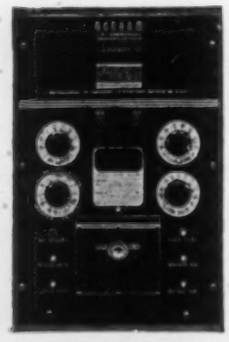
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HEATING MEANS BETTER HEATING

D347-2/3E

THE RECORD REPORTS

(*Continued from page 10*)

struction projects at the peak of the 1947 program next September, a figure exceeding last year's top on-site employment by three-quarters of a million workers. About 35 per cent of the manpower required, it assumes, will be used on nonfarm housing, 30 per cent on nonresidential building and 35 per cent on non-building and farm construction.

Plan Man-Hour Studies

A measure of the man-hours of labor required for principal building materials is now under way in a series of surveys by the Bureau of Labor Statistics. The Bureau has found that it now takes 12 per cent less labor to produce 100 barrels of cement than in the middle 1930's while 34 per cent more man-hours are required to produce a thousand board feet of dressed Southern pine lumber.

Increased production and plant utilization largely account for the change in cement production, it finds, while greater requirements in Southern pine production arise from inadequate labor force and the cutting of smaller trees.

Other products under survey include plywood, hardwood and hardwood flooring, insulation products, fabricated steel assemblies, plumbing and heating materials, and sand and gravel.

The Bureau points out that for every dollar spent on work at the site of a construction job, additional employment is created in mines, factories, and transportation systems. When the above studies are complete, they will permit estimates of the "behind-the-lines" employment involved in any given level of construction activity.

From Here and There

From numerous sources come items of interest:

1. The War Assets Administration has put out a pamphlet to guide business, institutions, banks, local governments, etc., in buying federally-owned surplus real property. It is entitled "How to Buy or Lease Surplus Real Estate."

2. Construction applications denied since last March 26 run approximately $2 billion, the Office of Temporary Controls advises. Items granted had passed $2.6 billion by February.

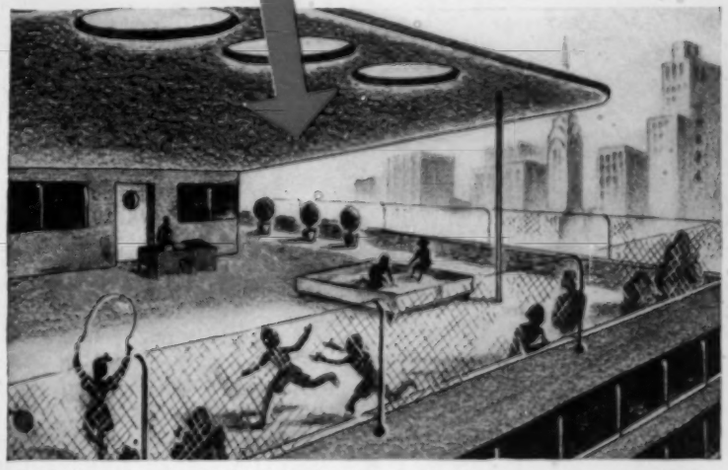
3. NHA reports that HH authorizations under the veterans' program put Pacific Coast states ahead, followed respectively by East North Central, Middle Atlantic, New England, West North Central, South Atlantic, East South Central, West South Central, and Mountain states.

4. A 51-page veterans' guide on "Mutual Housing" has been issued by NHA.

5. New home mortgage loans by sav-

(*Continued on page 14*)

PHOTO BY FAIRCHILD AERIAL SURVEYS



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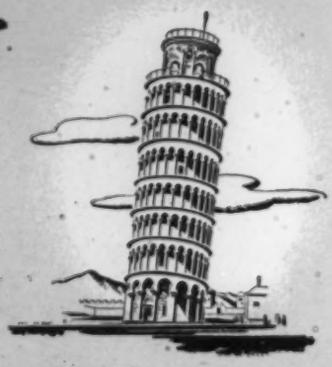

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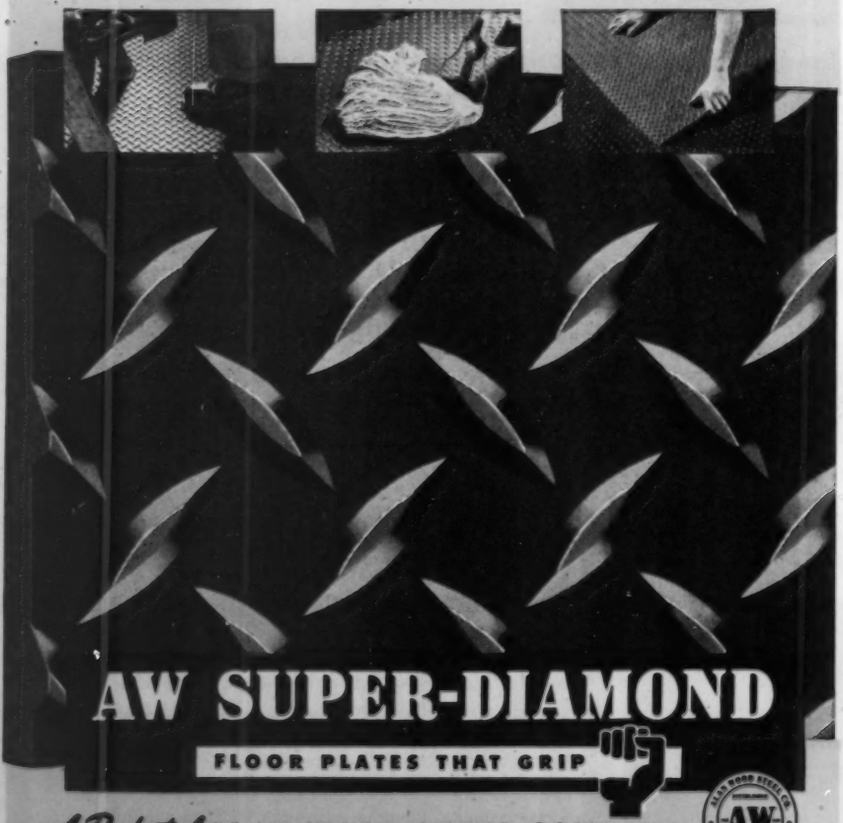

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THE RECORD REPORTS

(*Continued from page 12*)

ings and loan associations in the first 11 months last year exceeded by 74 per cent those of the full year 1945 and were more than double any previous yearly total. In reporting this, the Federal Home Loan Bank Administration sets the 11-month total at $3.3 billion.

6. The new Congress received a report on the final liquidation of the U.S. Housing Corporation, created in the wake of World War I 28 years ago.

7. Commerce Department reports a 78 per cent increase in January in total dollar construction compared to January a year ago.

8. The Senate Banking and Currency Committee has set up a housing subcommittee headed by Senator Buck of Delaware. The four other members are Cain of Washington, Bricker of Ohio, Wagner of New York, Fulbright of Arkansas.

❖ ❖ ❖

ARCHITECTS NOMINATED TO U.N. DESIGN BOARD

Twenty-six architects were nominated early in February by 21 nations for the Board of Design Consultants of the United Nations capital. From these the 10 members of the Board will be chosen by Wallace K. Harrison, director of planning for the East River site.

The 26 nominees are: Geronimo Remorino of Argentina; Gustave Brunfaut, Jean van den Bosch Hendricks, Alexis Dumont, Charles Malcause and Hugo van Kuyck all of Belgium; Oscar Niemeyer, Brazil; Ernest Cormier, Canada; Hermogenes Del Canto, Chile; Ssu-cheng Liang, China; Josef Havlicek, Czechoslovakia; Edvard Thomsen, Denmark; Basile Kouremenos, Greece; Roberto Irigoyen, Guatemala; Bunt Laugur Halldorsson, Iceland; Ivan Eyvind Moestue, Norway; Alfredo Dammert, Peru; Juan Arellano, Philippines; Matthew Nowicki, Poland; Ragnar Hjort, Sweden; Gordon Leith, S. Mullins, Jan Juta, all Union of South Africa; N. D. Bassov, U.S.S.R.; Howard Robertson, United Kingdom; Guilio Vilamajo, Uruguay; Ernest Weismann, Yugoslavia.

TRUCK TERMINAL PLANNED

Authorization has been granted by CPA to the Port of New York Authority for the construction of "the world's largest union motor truck terminal" in downtown Manhattan.

The huge $5,000,000 terminal, the first in a series to be built by the Port Authority, will be 1000 ft. long and 160 ft. wide. The roof is planned to accommodate possible helicopter cargo pick-up

(*Continued on page 16*)

MOUNTAINSIDE HOSPITAL, MONTCLAIR, N. J.
York & Sawyer, architects

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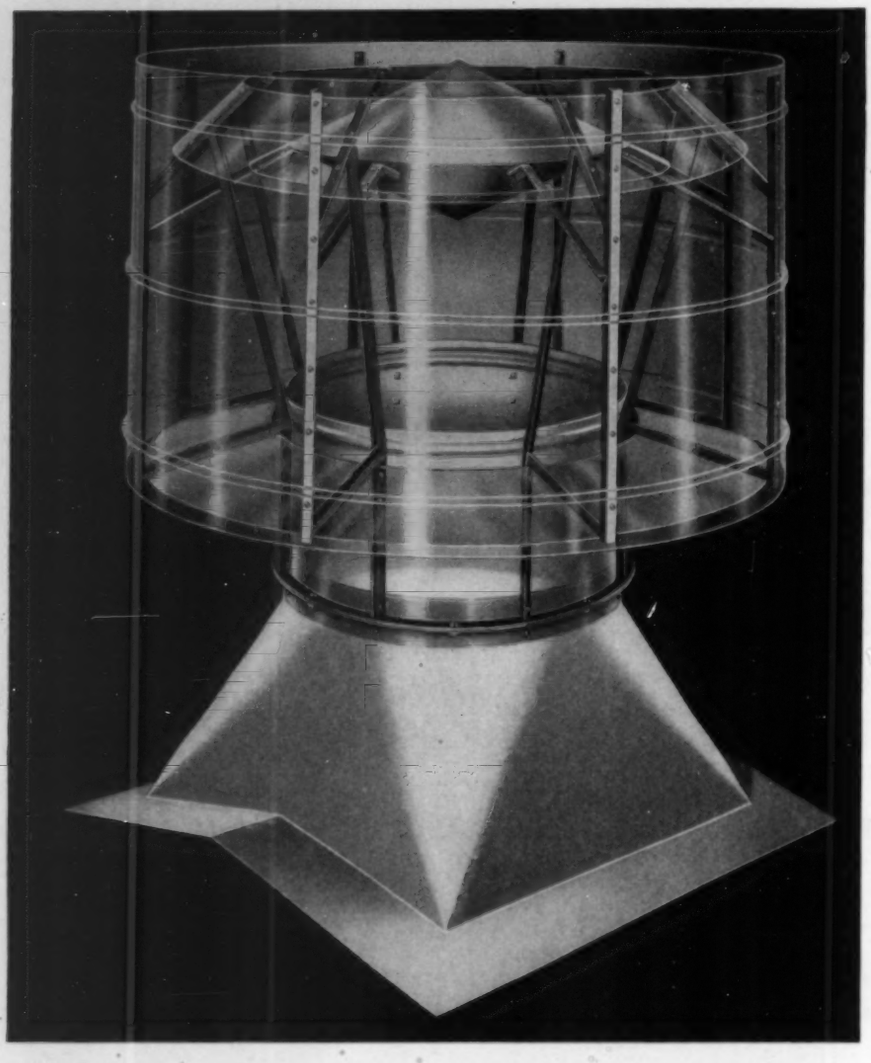
BURT FREE-FLOW GRAVITY



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Internal louvers that block discharge and reduce capacity are eliminated in the improved Burt Free-Flow Gravity Ventilator. Air is exhausted freely—discharged vertically upward for greater efficiency and to eliminate condensation of moisture onto the roof beneath the ventilator. Engineered to prevent back draft, provide ample drainage and storm-proofing. Where a large capacity stationary ventilator is required, the Burt Free-Flow is your best installation. See Sweet's for complete details or write for catalog and data sheets.

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THE RECORD REPORTS

(*Continued from page 14*)

and delivery, and to furnish parking space for 70 complete tractor-trailer units.

The terminal will have off-the-street bays for 144 trucks, will be capable of handling over 2000 tons of merchandise freight daily. It will occupy the area bounded by Washington and Greenwich, Spring and West Houston Sts., only a few blocks from the Holland Tunnel and close to the steamship piers.

CANTERBURY RESTORATION

A gift of $500,000 has been made by Thomas W. Lamont toward the restoration of Canterbury Cathedral, badly damaged by German incendiary bombs on May 31, 1942. Although spared a direct hit, the historic cathedral's roof was burned and many of its windows were blown out. Complete restoration, therefore, is possible, and now is made feasible by Mr. Lamont's generous gift.

ARCHITECTURE SHOW

On view at the Museum of Modern Art, New York City, through April 6th, is an interesting review exhibition, "Henry Hobson Richardson Architectural Masterpieces." Consisting of eight greatly enlarged photos selected from the Museum's own historical collection, the exhibition shows several of Richardson's best-known buildings, among them Brattle Square Church in Boston, Crane Memorial Library in Quincy, Mass., and Allegheny County Courthouse, Pittsburgh, Penn.

MATERIALS ROUNDUP

"Stocks of cement in the hands of producers are on the increase for the first time since early last year." — The Department of Commerce.

"The output of some types of plumbing fixtures in 1946 exceeded that for any prewar year or the output during the war period. Further substantial increases are expected in 1946." — Plumbing and Heating Industries Bureau.

"Past production records are being equalled or exceeded in substantially all lines of building materials." — Tyler S. Rogers, president, The Producers' Council, Inc.

ON THE CALENDAR

March 19–22: American Society of Tool Engineers, 15th Annual Convention, Houston, Texas.

March 22–27: Western Metal Congress and Exposition, Oakland Municipal Auditorium, Oakland, Calif.

March 25–28: 17th annual Safety Convention and Exposition, Hotel Pennsylvania, New York City.

April 19–27: Metropolitan Home

(*Continued on page 124*)

new Series "40"
BENJAMIN FLUORESCENT UNITS

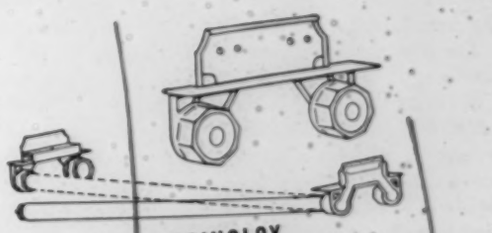
bring these **3 exclusive**

Benjamin Developments

● You'll find new beauty... new utility... high efficiencies in the new Series "40". Important and exclusive Benjamin developments, such as are illustrated here impart a new streamlined smartness... a new ease of installation... greater freedom from glare... quicker maintenance. One outstanding advancement is the new exclusive BENJAMIN SPRINGLOX Safety Lamp Holder... a practically indestructible, one-piece socket that actually makes it easy to insert and remove the lamps! No more forcing ...no more difficulty positioning prongs. Only when you actually use SPRINGLOX can you appreciate the great forward stride represented by this exclusive Benjamin development.

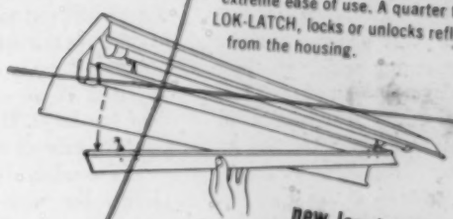
Along with all these new features you get that same famous Benjamin built-like-a-battleship construction... Benjamin Life-Time porcelain enameled heavy gauge steel lighting reflectors... conformance with all applicable RLM standards and other industry specifications ...for all these things are essential to *finest* lighting at *lowest* per-year-cost. With Series "40" as with all other Benjamin units, you can be sure you "Light Right when you Light with Benjamin."

Series "40" units are NOW IN PRODUCTION. For delivery dates consult your Electrical Wholesaler; for CATALOG BULLETIN on new Series "40" write Sales Promotion, Dept. Q-1, Benjamin Electric Mfg. Co., Des Plaines, Illinois.

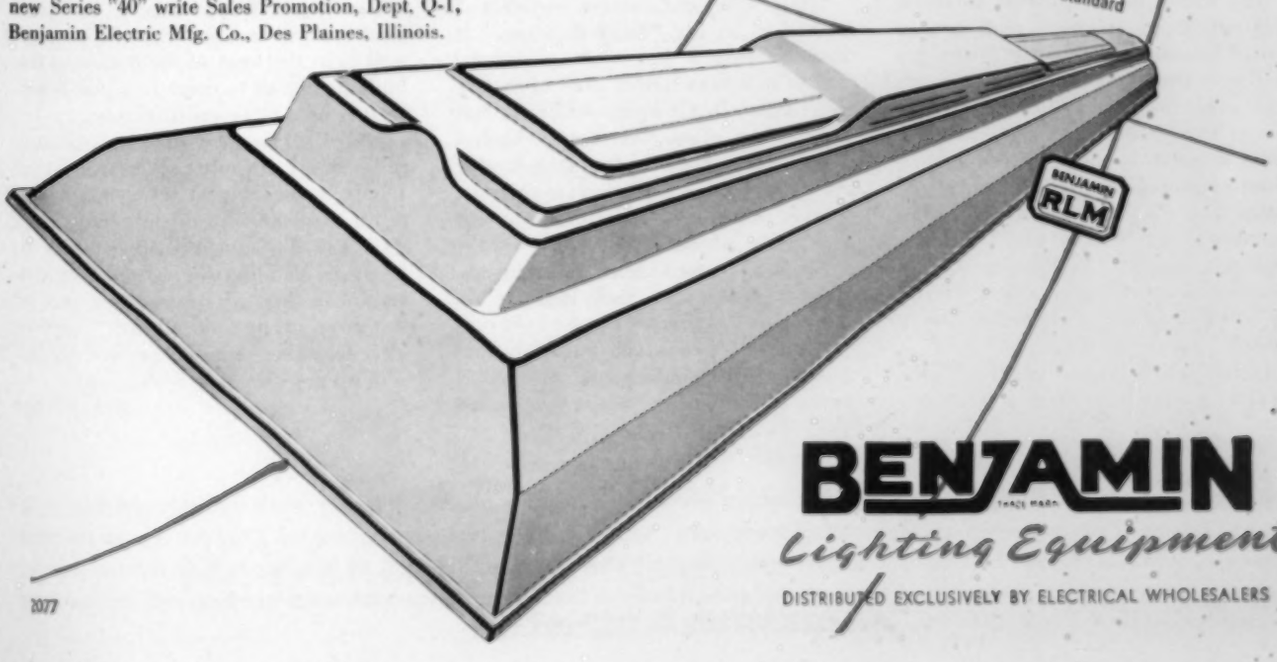


new **SPRINGLOX safety lamp holder**— Simply push one end of lamp into the holder and let the resulting spring pressure push other end into facing socket. Spring pressure locks lamp into position; it can't drop out!

new **LOK-LATCH** is a new adjustable reflector fastener that combines positive fastening of reflector to channel with extreme ease of use. A quarter turn of LOK-LATCH, locks or unlocks reflector from the housing.



new longitudinal SHIELD increases overall shielding from 13° to 27°. An optional attachment which may be attached to all Series "40" and previous models of Benjamin 2 lamp fluorescent units. Meets RLM standard specifications.



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2077

MR. OUD REPLIES

In the December issue of the RECORD there was published a highly provocative building, the Shell "I.B.M." office building at the Hague, with critical comment, under the title "Mr. Oud Embroiders a Theme." Invited to add his own remarks, Mr. Oud has written so expressively, even in a foreign tongue, that his wording has been left untouched:

My dear Editors,

The wish to challenge sharply what I am doing is a wish I can understand.

Meaning that when someone is fixed to a style of development which seems clear enough, it must be a disappointment to see him escape the rules one based upon this belief. Yes, I comprehend very well your wish to go at me!

But let me defend myself and allow me to state that this is not my mistake. I have always tried to keep myself far away from all "rules." Seeing something "new" the world is immediately willing to give it a label and to place it in a partition.

I know definitely that I myself never succumbed to this labeling.

Since I attempted to go my own way in architecture I always had only one device — a device which has guided me up to now! — "seeking clear forms for clearly expressed needs." This proved to me not to be a matter of static, it was a thing of dynamic order. The rules it brought were not of a formal nature but very informal ones. It became evident that they were changing, within distinct limits, with the development of the idea.

In the beginning I was working on laborer-dwellings and my aim was to find a good and agreeable form for them; a form — so to speak — as exact and as clear as the form of a good car, a good steamer, a good electrical tool. In other words, I was searching for a good "common" form. And we have attained much in this respect.

The world, however, does not exist only out of cars, steamers, tools, neither out of houses, factories, etc. There are grades in the usual things of our existence and in my opinion there are for that reason also grades in our architecture. Even in good democracy there will be order of precedence in the family: the father has — or should have — another function from that of the son. Analogous with this, domestic building in our Society has another function from that of an office-building, a town-hall or a church.

Little by little, I discovered that the form of a laborer-dwelling or a factory cannot be the end of all architectural wisdom. It is an error to imply that this is true and that we have already reached "new architecture" by this means. It seems to me at present quite all right that the new domestic architecture is the base of new architecture; that it should be already new architecture itself, I deny emphatically.

Architecture itself — old or new — can and must give: emotion. It has to transport the esthetic vision of one man (the architect) to another man (the onlooker). And why should it not? Are we in our modern times so condemned that we dare not set our own stages? Are we really so dried up that we don't allow ourselves to play a bit now and then? It is a very important fact which is too often forgotten in the case of new architecture!

We know now how to make "new building" by the application in a clear manner of concrete, plate-glass, steel, etc. We did this, as previously mentioned, with success. But we never dare forget that the esthetic emotion emanating from simple works like the work in question is an esthetic emotion on a very low level. Building like this — and the majority of building is of this kind — is a wonderful start toward new architecture but new architecture itself has still to be found. One could say with some exaggeration: it is the bass to the music but not its essence. In some cases: the lyric, not the epic side of architecture.

Now: new architecture is what I strived at in my "Shell Building." It may be that it has more traditional ballast in it than former work of mine. I don't know. But it would not be the first time in my efforts that I went back a bit to make myself fit for going further on the way I seek to explore: in this case a more difficult way to tread than the way of the laborer-dwellings!

Should you have time and opportunity to study the "Shell Building" in reality [on the ground] I make bold that you shall have to establish the fact that I succeeded in finding new solutions. I agree with one of the critics you quoted that my ornament is not at all traditional. That it is developing after new directions and that it functionally is well placed into the composition.

And by the way: do you know that the "Shell Building" up to now already has been used for 5 years — sometimes by 600, sometimes by 1000 employees — and that I never heard one complaint about the practical functioning of the building? What do you think could "functionalism" do more in this respect? And why should it be forbidden to give functional doing a spiritual form? Functioning alone as a leading principle — my experience taught me this — results in esthetical arbitrariness. Don't forget this.

Yes, I am sure the "Shell Building" is an effort to arrange new practical needs in a well-considered and esthetically well-shaped form. I must confess here that I have no belief in the application of the form of laborer-dwellings and factories to office-buildings, town-halls and churches!

The whole world in laborer-dwelling-style must be unorganic and dull!

To resume: I tried to bring all that what we gained up to now in the field of new architecture to a cultural higher level. You think I went back on my way. I am not so sure of it. Look for instance one day at the building itself and see what I reached in the light and bright tone of the building as a whole: not like with plastering in a semi-permanent manner but by the use of fine and durable material. Well, trials of the same kind you will find in the whole shape as well as in the form of the details of the building. Trials to come to a new architecture on a more spiritual base.

Did I succeed? Other people may judge this. I can only say for myself that I hope to be able to try it again and again to make further progress in this direction. To have the opportunity to help new building rise to new architecture. And this, my dear editors, still on the base of my old device: "seeking clear forms for clearly expressed needs."

With my very best wishes, etc.

J. J. P. Oud

This clarifies the difference in viewpoint. The undoubted fact that a house, an office building, a factory, each creates a different problem has somehow been twisted into a question of rank and caste. Again, Oud's critics are not against joy. They are against the small increment obtainable at great expense by decorative embroidery. Far better today to save funds by adhering to industrialized building methods under clear design; then put these funds into real embellishment of the building by top-notch artists who have real joy to convey. — Further comment is invited. DH

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TRUE CHURCH TONE

or for strict conformity to the specifications of The American Guild of Organists

PARTIAL LIST OF AMERICAN GUILD OF ORGANISTS SPECIFICATIONS TO WHICH THE WURLITZER ORGAN CONFORMS:

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Compass: 32-note, CCC to G

Radiation: 8'-6" radius

Concavity: 8'-6" radius

Vertical: 29½" between playing surfaces of middle E natural pedal key and the playing surfaces of the natural keys of the Great manual.

PEDAL ACCESSORIES

Swell and Crescendo Pedals: Heel end of playing surface of shoes overhang sharp keys of pedal clavier within the 1¼" maximum forward position, and the 3/4" maximum distance back of them.

Swell Pedal located directly in the center of middle E—F gap on pedal clavier.

SWELL AND GREAT MANUALS

Compass: CC to c^4, 61 notes.

Keys overhang a distance of 4" from the front edge of the Swell manual to a perpendicular line touching the front edge of the Great manual keys.

Surface-to-surface: Swell manual is 2½" above Great manual.

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Divisions of stop tablets have the following sequence from left to right on console: Pedal, Swell and Great.

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Organists who complain, quite naturally, that electronic organs have been unfamiliar and inconvenient will find that the new Wurlitzer Organ completely dispels this objection. All essential playing dimensions specified for modern two-manual *pipe* organs are faithfully adhered to in the design of this superb new instrument.

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The WURLITZER ORGAN

Series 20 Two-Manual

CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926 — 1929 = 100

Compiled by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

	NEW YORK					ATLANTA				
	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings		Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
Period	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	136.1	136.9	123.3	123.6	122.6	122.8	122.9	108.6	109.8	105.7
1925	121.5	122.8	111.4	113.3	110.3	86.4	85.0	88.6	92.5	83.4
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1940	126.3	125.1	132.2	135.1	131.4	91.0	89.0	96.9	98.5	97.5
1941	134.5	135.1	135.1	137.2	134.5	97.5	96.1	99.9	101.4	100.8
1942	139.1	140.7	137.9	139.3	137.1	102.8	102.5	104.4	104.9	105.1
1943	142.5	144.5	140.2	141.7	139.0	109.2	109.8	108.5	108.1	108.7
1944	153.1	154.3	149.6	152.6	149.6	123.2	124.5	117.3	117.2	118.2
1945	160.5	161.7	156.3	158.0	155.4	132.1	133.9	123.2	122.8	123.3
Jan. 1946	173.1	173.7	169.8	170.4	167.0	137.9	138.4	127.4	127.3	127.0
June 1946	180.7	181.0	177.9	179.7	175.1	144.9	147.4	133.5	131.2	131.5
Oct. 1946	188.0	188.5	181.9	184.8	179.9	155.6	156.5	143.0	144.7	142.2
Nov. 1946	188.9	189.7	182.3	185.1	180.3	156.2	157.0	144.0	146.0	142.7
Dec. 1946	192.6	194.4	183.4	185.9	182.3	159.2	160.8	144.9	146.6	143.9
	% increase over 1939					% increase over 1939				
Dec. 1946	**55.9**	**58.7**	**40.3**	**39.3**	**40.1**	**84.5**	**93.6**	**52.0**	**50.5**	**52.0**

	ST. LOUIS					SAN FRANCISCO				
1920	118.1	121.1	112.1	110.7	113.1	108.8	107.5	115.2	115.1	122.1
1925	118.6	118.4	116.3	118.1	114.4	91.0	86.5	99.5	102.1	98.0
1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.4	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1940	112.6	110.1	119.3	120.3	119.4	106.4	101.2	116.3	120.1	115.5
1941	118.8	118.0	121.2	121.7	122.2	116.3	112.9	120.5	123.4	124.3
1942	124.5	123.3	126.9	128.6	126.9	123.6	120.1	127.5	129.3	130.8
1943	128.2	126.4	131.2	133.3	130.3	131.3	127.7	133.2	136.6	136.3
1944	138.4	138.4	135.7	136.7	136.6	139.4	137.1	139.4	142.0	142.4
1945	152.8	152.3	146.2	148.5	145.6	146.2	144.3	144.5	146.8	147.9
Jan. 1946	157.7	158.3	150.8	152.6	149.5	148.6	146.4	146.7	148.3	149.3
June 1946	165.8	165.0	159.9	163.8	159.5	158.0	156.5	156.2	156.9	156.6
Oct. 1946	174.6	175.1	165.3	167.0	164.7	166.0	163.1	164.3	167.2	168.2
Nov. 1946	174.9	175.4	165.8	167.2	164.9	166.4	163.5	164.8	167.6	168.6
Dec. 1946	178.9	179.8	167.2	168.3	166.5	169.6	166.8	165.9	168.4	169.8
	% increase over 1939					% increase over 1939				
Dec. 1946	**62.4**	**68.0**	**44.6**	**44.2**	**39.9**	**60.6**	**68.0**	**41.3**	**38.1**	**45.7**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published legal prices, thus, indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

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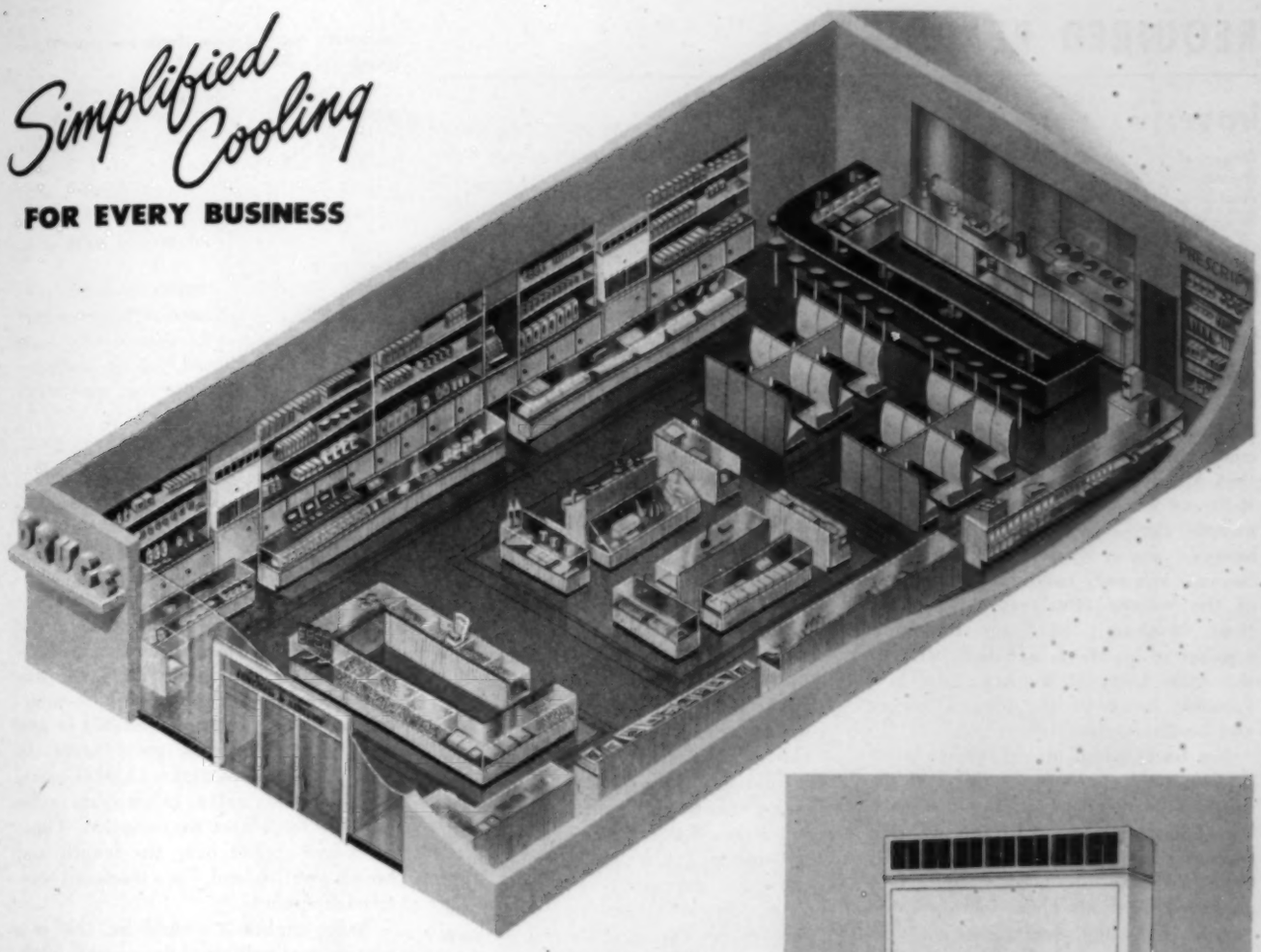

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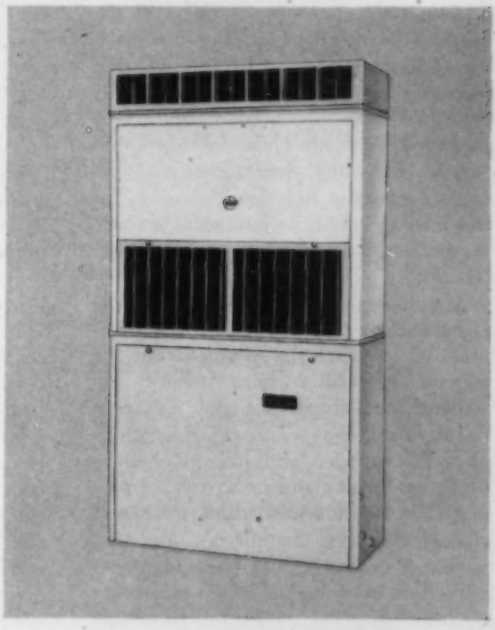

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PACKAGED AIR CONDITIONERS

HEATING • AIR CONDITIONING • COMMERCIAL REFRIGERATION

REQUIRED READING

HOSPITALS

Hospitals — Integrated Design. By Isadore Rosenfield. New York (330 W. 42nd St.), Reinhold Publishing Corp., 1947. 8½ by 11¼ in. 308 pp. illus. $10.75.

In the spring of 1944 a series of lectures on hospital planning was given by Isadore Rosenfield under the joint sponsorship of the New York chapter of the A.I.A. and the Department of Public Works of New York City. Attended by architects, members of the medical and nursing professions and hospital officials, the lectures proved so popular that Mr. Rosenfield has now expanded them to book form. His decision to include the discussions following the lectures was a good one: these discussions not only heighten the interest of the volume (the reason given for their inclusion), but also answer a number of questions not dealt with in the main body of the text, and add valuable comment by doctors, nurses and hospital authorities.

For background material there is an introductory chapter on the need for hospital facilities, which, together with the following one on comprehensive planning, gives a general picture of the types of hospitals needed, and their preferred location. There follows a discussion of siting, budgeting, and integration of the functional elements of the hospital. The various elements are then taken up in detail in separate chapters.

Mr. Rosenfield is at his best in the eight chapters he devotes to the planning of the facilities required by the general hospital. These include the nursing unit, diagnostic and therapeutic facilities, x-ray and radiation therapy, laboratories and necropsy, operating, maternity and pediatrics, service departments (administration, stores and storage, dietary, laundries), and the outpatient department. These chapters, with the ones on lighting and other technical aspects, comprise the main section of the volume.

Only one chapter is given to the special hospitals — contagious, tuberculosis, cancer, chronic, psychiatric, convalescent and cardiac. There is so urgent a need for an exhaustive study of this subject that to find Mr. Rosenfield contenting himself with such brief coverage of it is somewhat disappointing. Yet in proportion to the size of the book as a whole, the amount of space allotted is fairly generous, and the main points at least are covered. This is particularly true of the mental hospital, which is discussed in more detail than are the other special types.

Certain mechanical faults of the volume detract from its overall effectiveness. Many of the plans are out of scale, many of them have no scale given, and a number of them are not wholly legible. References in the text are by chapter and figure number, not by page, which makes them rather difficult to locate; one of them, at least, is incorrect. One large and important plan is incorrectly keyed in its entirety. These are minor faults which undoubtedly will be corrected in a later edition.

GARDEN CITIES, INC.

Green-Belt Cities: The British Contribution. By F. J. Osborn. London, W.C. 1, Eng. (24 Russell Sq.), Faber and Faber Ltd., 1946. 5½ by 8½ in. 192 pp. illus. 12s. 6d.

Anyone at all familiar with the so-called Garden City idea is familiar also with the two London suburbs developed under the tutelage of Ebenezer Howard — Letchworth and Welwyn. This volume is largely a recounting of the history to date of the two, and an appraisal of their merit as a way of life.

Mr. Osborn's personal connection with the actual development of these two "young" towns here stands him in very good stead. Known as a proponent of the Garden City, he nonetheless appreciates and expresses freely the difficulties, disadvantages and criticisms. As is to be expected, he harks back constantly to Howard's *Garden Cities of Tomorrow* (a new edition of which he prepared only a few months ago). But he goes further back than Howard for historical background: he quotes the Bible, early Greeks and Romans, and, of course, Sir Thomas More's *Utopia*. Of particular interest in this connection is the diagram he includes of a typical Levitical city "derived from description in Numbers 35, and the modern excavation of Gezer." This diagram shows a square town area of about 22 acres, surrounded by an enclosing square of 300 acres of pasture lands.

Ezekiel's plans for Jerusalem, too, are referred to by Mr. Osborn: there was to be "a perimeter belt . . . 450 ft. wide around it, and beyond, on the east and west, 'food lands' extending for another 3½ miles. . . ."

To return to Letchworth and Welwyn, Mr. Osborn tells their story in some detail, and describes their various sections. He includes one chapter on their administration and finance. With this as background he then proceeds to discuss their social life and culture — a formidable job! Interesting facts he points to include:

1. The average age of the inhabitants is below that of England as a whole.

2. In the main the employed people first went to the two towns because they found employment there; only a small minority sought jobs there because they liked the towns.

3. Income extremes are relatively absent.

4. "Common to the social life of both towns is the background of a decent home for virtually every family, and of local employment for most."

5. Life is more communal than in a large city.

Mr. Osborn, naturally enough, predicts a wider acceptance of the green belt principle, and sees no reason why such town planning should not be lastingly successful. He presents his arguments forcefully.

TO HAVE AND TO HOLD

On Trust for the Nation. By Clough Williams-Ellis. London, E.C.1, Eng. (36-38 Hatton Garden), Paul Elek, Ltd., 1947. 7 by 9½ in. 172 pp. illus. 25s.

This unusual book records the accomplishments of the National Trust for Places of Historic Interest and Natural Beauty. Founded in 1895, the National Trust is strictly a private-enterprise organization, not affiliated in any way with the British government. In 1946 it owned outright 115,000 acres, and had nearly half as much again under its wing to protect by covenant. These acres are spread over the length and breadth of England, "in a thousand scattered fragments."

As by rights it should be, this is a sentimental volume. Like a guide book, it follows a geographic trail southward from the Scottish border, and furnishes maps dotted with the properties under the National Trust aegis. It is rife with lush descriptions of scenery, buildings, parks, etc. It is crowded with photos (unusually good ones, the great majority of them) of landmarks both famous and little known which are included among the Trust's preserves: landmarks such as a good section of the Roman Wall, a number of handsome old country houses and estates, cottages and public buildings, churches, lakes, and even one of the famous "chalk cliffs of Dover."

CHURCHES

Christian Science Church Edifices. By Charles Draper Faulkner, A.I.A. 2nd ed. Chicago 6, Ill. (307 N. Michigan Ave.), Charles Draper Faulkner, 1946. 9 by 12 in. 418 pp. illus. $6.50.

Intended expressly for the use of building committees, this handsome volume is devoted exclusively to Christian Science churches. It covers every problem the committees must face from the selection of the site to the letting of contracts.

Mr. Faulkner not only is an architect, but has himself designed a number of Christian Science churches. He understands their special needs, their dis-

(*Continued on page 30*)

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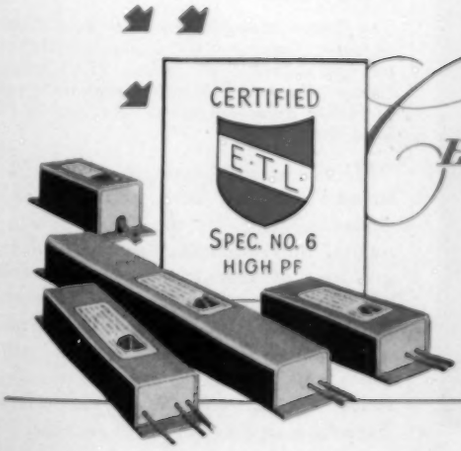

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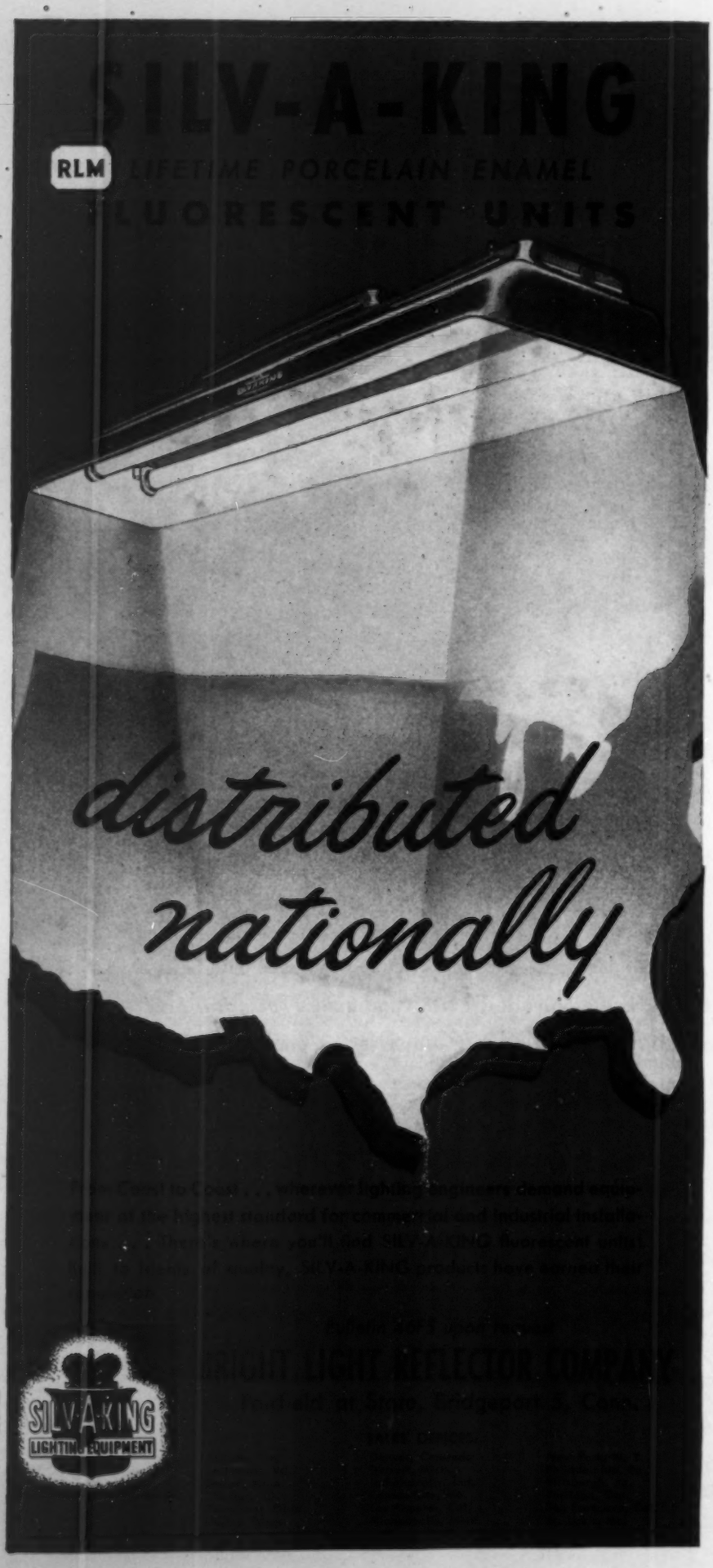


REQUIRED READING

(*Continued from page 28*)

tinguishing characteristics. To illustrate the points he makes, he has assembled in this volume some 200 photographs and plans of Christian Science churches throughout the country. Of all sizes and architectural styles, these will be of particular interest and help to the architect designing a church of this type. The structures vary amazingly, both outside and in — more, probably than do churches of other denominations; the plans themselves, however, are fundamentally the same.

CITY PLANNING

NEW YORK

Planning Recommendations for the Washington Square Area. Prepared for the Washington Square Assn. by Arthur C. Holden. New York 3 (65 Fifth Ave.), Washington Sq. Assn., 1946. 8½ by 11 in. 102 pp. illus. $1.50.

The persistence with which the old residential area around Washington Square in lower Manhattan has withstood the inroads of commerce certainly merits the careful study which it now has received in this booklet. The area extends from 14th Street to Canal, Broadway to the Hudson River, and takes in the whole of Greenwich Village; for planning purposes it has been subdivided into five smaller areas, three of which have been found suitable for replanning and redevelopment.

Very few specific recommendations are made in this report. The character of the district is analyzed, the shortcomings and the needs are squarely faced, and the good features pointed out. General recommendations include more parks, new express streets, a whole new loft and manufacturing area south of the Square, an extension of the residential areas, and revision of the zoning laws to provide future protection.

BOSTON

The Boston Metropolitan District: A Bibliography. Compiled by Katherine McNamara. Cambridge 38, Mass. (215 Littauer Center), Harvard University Graduate School of Public Administration, 1946. 8½ by 11 in. 198 pp. $2.00.

Here is a bibliography of about 1500 items, arranged both topically and chronologically, on the "local governmental developments and attendant problems of urbanism within the area of Greater Boston" from 1784 through the first half of 1945. Included are items on subjects ranging from airports, railroads and harbors to building regulations, housing and land reclamation. There is a separate index of authors.

ARCHITECTURAL

RECORD

FREEDOM TO DESIGN

IT is foolish, of course, to express or to admit a fear. We have only to fear fear itself. But I have heard otherwise sane architects mentioning a fear that all was not well in development of Modern Design — architectural design, that is, with a capital M. The fear is that modern designers are afraid of their freedom, that well-won freedom of the functionalist who stripped off the stylistic strait jackets and left their buildings bare, naked, but unabashed in all their structural beauty. It is the fear that a new style, modern, is imposing too many rigid taboos and that the young designer may be too tempted to copy the established formal clichés, the outward forms rather than the inner spirit, the underlying philosophy of great exponents of functional and organic beauty. But such imitation is part and parcel of the traditional art of architecture.

One should have no such fears, in spite of the evidence to the contrary. In the period of building expansion just ahead there will be designers, young and old, who will no longer fear to depart from the seemingly meager palette of their art, men (and women) who will declare their freedom from any impending stagnation or sterility of a "style." They will no longer strive so hard to be "different," all in the same way with the same forms, like the iconoclastic girls who, in their desire to be different, adopted the rolled-up blue jeans, flying shirt tails and moccasins, a rigid uniform.

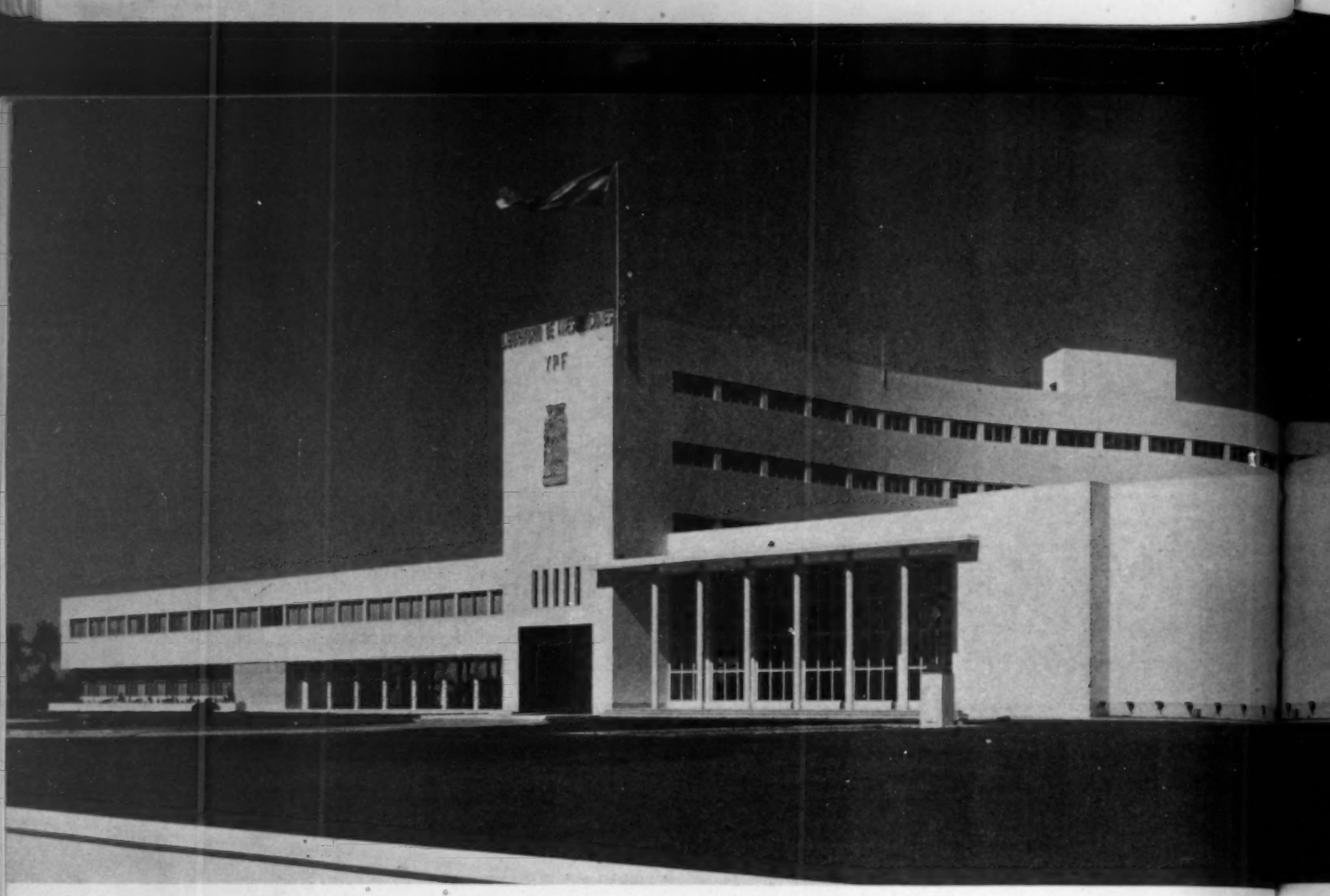
The urge to create will transcend the learning stage with its tendency to copy or adopt each experimental form from the current magazines. Critical judgment will dictate the exercise of some discrimination, the choice of the *better solution* rather than merely the novel or the different. The mistakes of others will be discovered by personal critical analysis of the published works. Most of our architectural schools are endeavoring, each in its own way, to make its students think, and think their problems through from every aspect, functional, structural, efficiency, economic, social and esthetic.

And so I believe there will be heretics who will rebel against any hardened style, Period, or Modern; heretics who will provide designs for buildings both functional physically and significant and vital spiritually. We need have no fear of sterile stagnating standardization. Designers will continue to develop a finer sense of proportion and scale, of fitness of form to function. They may even discover the uses of forms now taboo because the despised traditionalist used them. There are functions of the play of light and shade on form and surface, of pattern, of contrasting forms that give life and meaning to designs. There is too much vitality and enthusiasm in our rising architectural talent to warrant any fear that their designs will be dry and tight and circumscribed. We will see rather a new freedom, a new, more individual expression, brighter, more lively, juicy, and intensely human designs, sincere and studied in conception, bold and stimulating in execution.

Architecture will continue to be a fine art, the mistress art, even within the framework imposed by economics, mechanics, sociology and what have you. Architects will continue, now and always, to exercise their freedom to design.

Kenneth K. Stowell

EDITOR



"YPF" RESEARCH LABORATORY

IN FLORENCIO VARELA, ARGENTINA

Office of Architecture of the Engineering Department of the Yacimientos Petroliferos Federales (Federal Oil Fields)

THE increase in oil exploitation in the Argentine Republic made it necessary for the "YPF" to build this extensive modern laboratory in which to carry on an intensive program of scientific research.

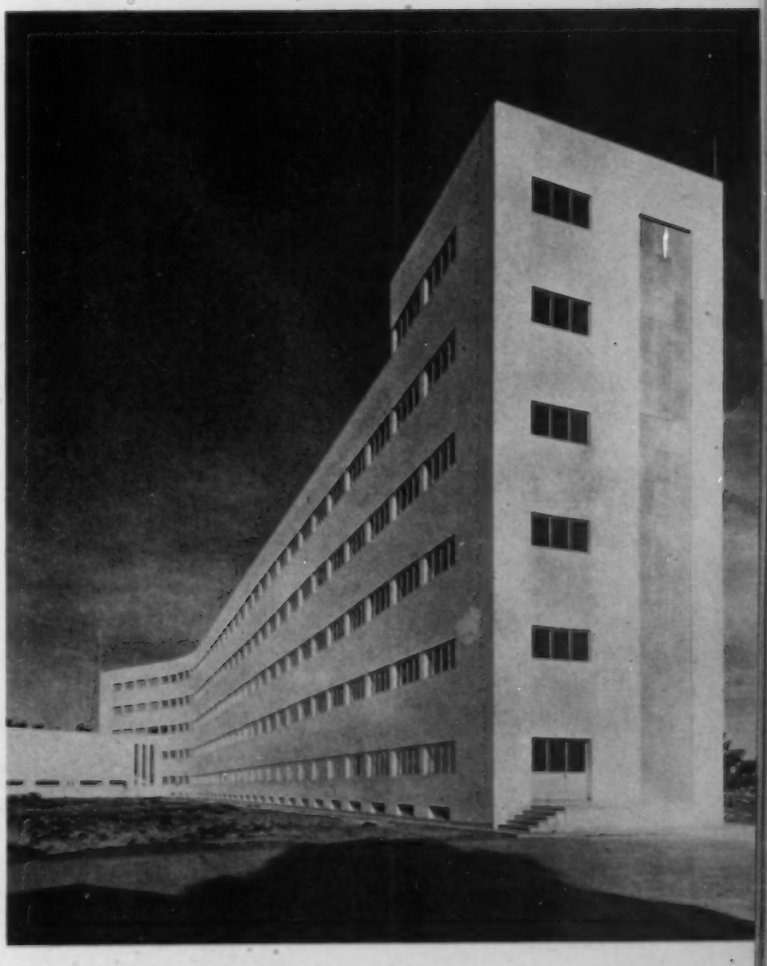
The plan of the building logically and functionally divides into four main elements: (1) laboratories; (2) administration and social; (3) public display and auditorium; and (4) shops and pilot plants, each in its own wing of the building. The main facade parallels the highway but the laboratory wing is carefully oriented to obtain the best possible natural lighting.

One entire five-story wing is devoted to the 35 individual laboratories (shown in detail on pages 72–73) and to their library, archives, storage, and small shops.

The lower wings of the building, flanking the curving laboratory structure, provide, at the right of the entrance, the museum and auditorium, and at the left, the open gallery, the dining rooms and the administrative offices. The shop section with its studios and offices pro-

The laboratory wing dominates the composition, its end forming the vertical element of the entrance front. The high-ceilinged museum wall is glass from floor to ceiling, protected by the projecting roof of the slender colonnade. Below: converging lines of corridor-windows looking from the far end of the laboratory

Ernesto Lewin Photos



Jorge de la Maria Prins, Hugo M. Rosso, Jorge M. Verbrugghe and Jorge Ros Martin . . . Architects

vides, in a wing paralleling the laboratories, large facilities for pilot plant construction and testing. This wing is connected to the laboratories, and by an open gallery, to the administrative wing.

The site was chosen to be relatively near the General Administration Building of the YPF and its La Plata distillery, and yet far enough removed from the industrial centers to eliminate physical and electrical disturbances which might interfere with the accuracy of meticulous research experiments. The building faces highway No. 2 and is served also by another highway between La Plata and Buenos Aires at the rear.

Comfort and ideal climatic working conditions are provided by a complete air-conditioning system, using furred-down corridors for main ducts, and by steam radiation and concealed convectors. Intercommunicating telephones and call systems assure efficient communication. The laboratory equipment, planning and finish have been carefully studied for efficient use.

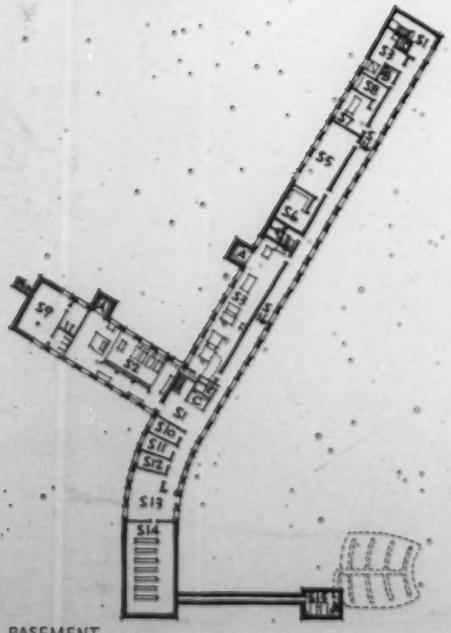
Above the entrance a symbolic bas-relief by sculptor Carlos de la Carcova embellishes the facade. Vertical windows light one end of the meeting room shown on the opposite page

GROUND FLOOR PLAN

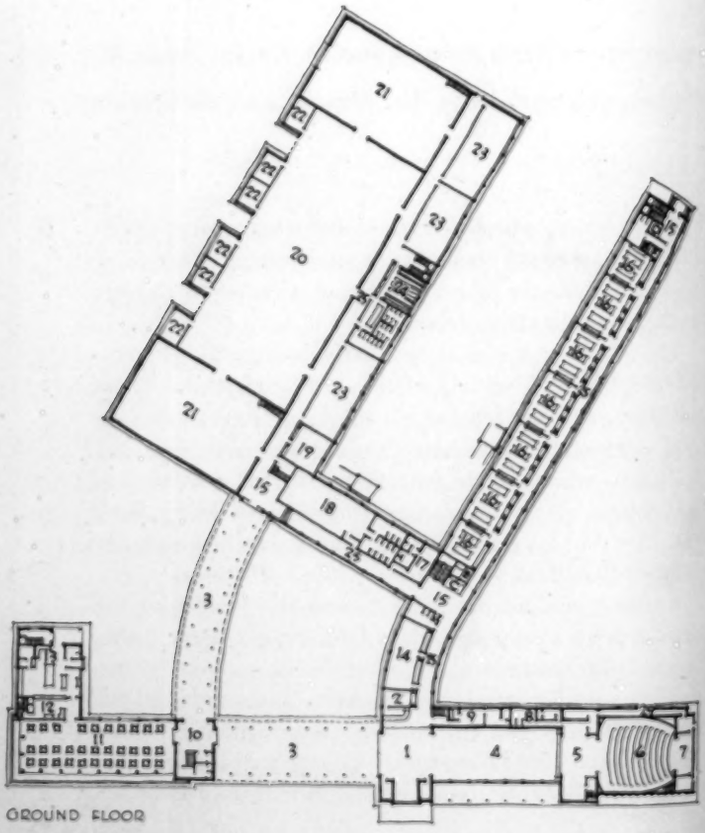
1. Main lobby
2. Information and control
3. Gallery
4. Museum
5. Lobby of the auditorium
6. Auditorium
7. Stage and adjoining rooms
8. Washrooms
9. Watchman's quarters
10. Dining room lobby
11. Dining room for employees and technical men
12. Serving pantry
13. Kitchen and services
14. Office
15. Hall
16. Laboratories
17. Ladies' dressing and washrooms
18. Men's dressing and washrooms
19. Infirmary
20. Shops
21. Experimental rooms or plants
22. Offices
23. Offices
24. Dressing and washrooms
25. Passageway

BASEMENT PLAN

S- 1 Hall
S- 2 Machinery and boiler room
S- 3 Compressor and ventilating machine room
S- 4 Cold storage room
S- 5 Photographic laboratory
S- 6 Dark room
S- 7 Physics laboratory
S- 8 Dark room
S- 9 Workmen's dressing and washrooms
S-10 Electric switchboard central
S-11 Storage batteries
S-12 Scales
S-13 Filing room
S-14 Filing shelves
S-15 Machine room of the auditorium
S-16 Passageway
A Trapdoor for bringing in machines
B Garbage incinerator
C Elevators
D Hoists
E Ventilating, conduits, piping, etc.



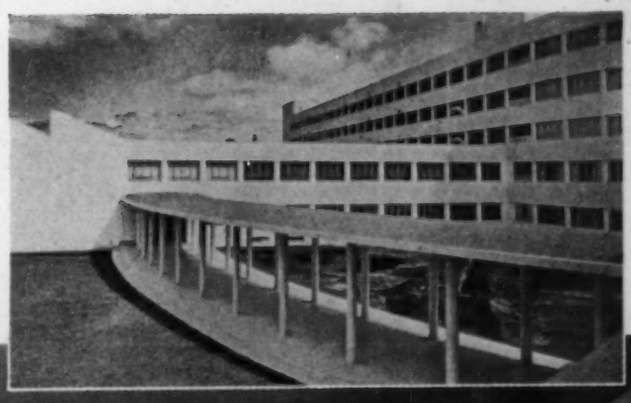
BASEMENT

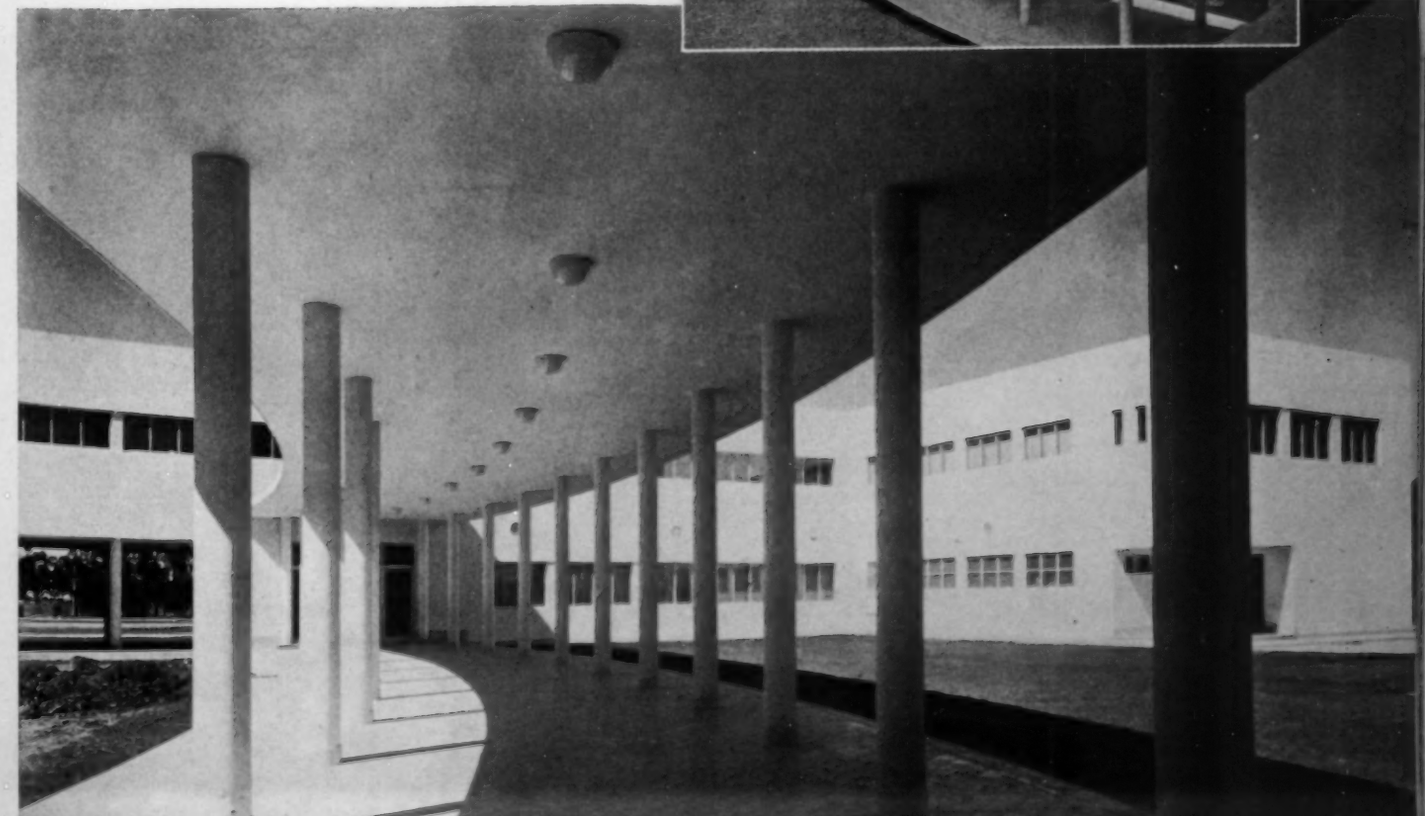


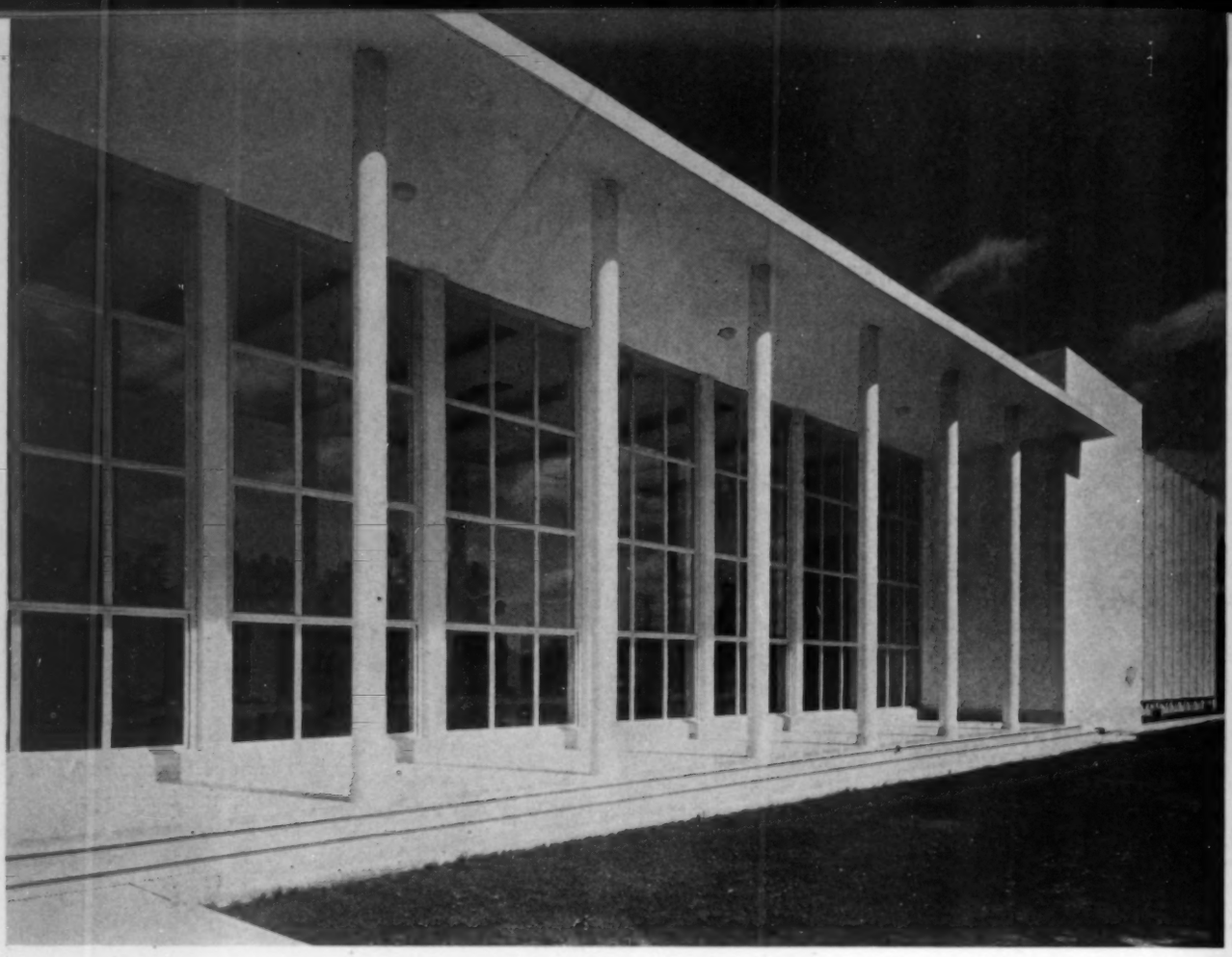
GROUND FLOOR

Above: the formal meeting room, paneled in oak, is centrally placed on the second floor above the main entrance lobby. Its acoustical ceiling has recessed panels for indirect lighting

Below: two views of the curved colonnade or open gallery connecting the shop wing with the main building, and showing the office link connecting the laboratory wing with the shops and pilot plant areas

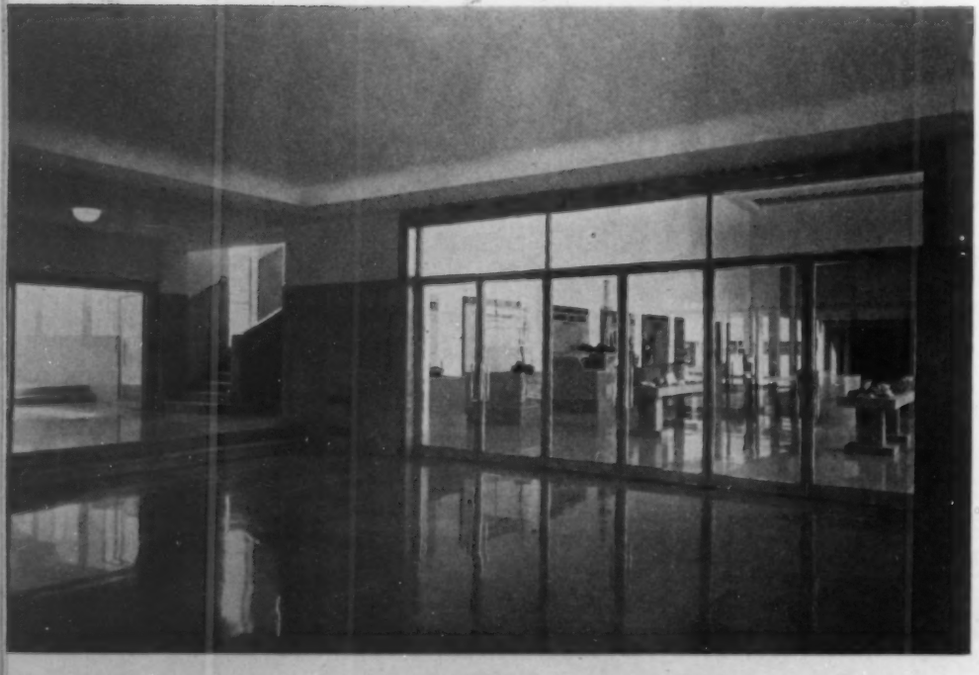






The great windows of the museum are protected from the glare of direct sunlight by the extended roof of the graceful portico

The entrance lobby provides access to the museum, to the laboratory wing, to the gallery, and, by stairs, to administrative offices



KEY TO PLANS →

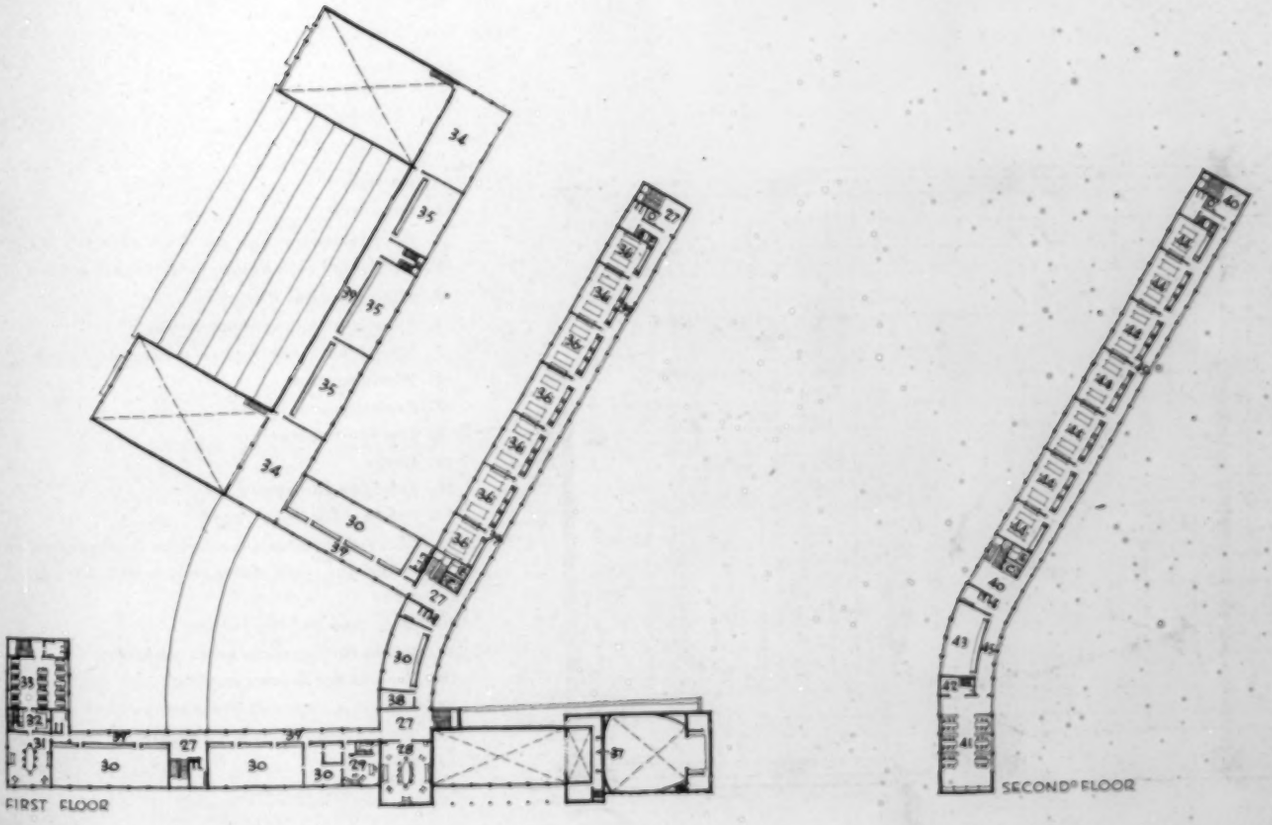
FIRST FLOOR

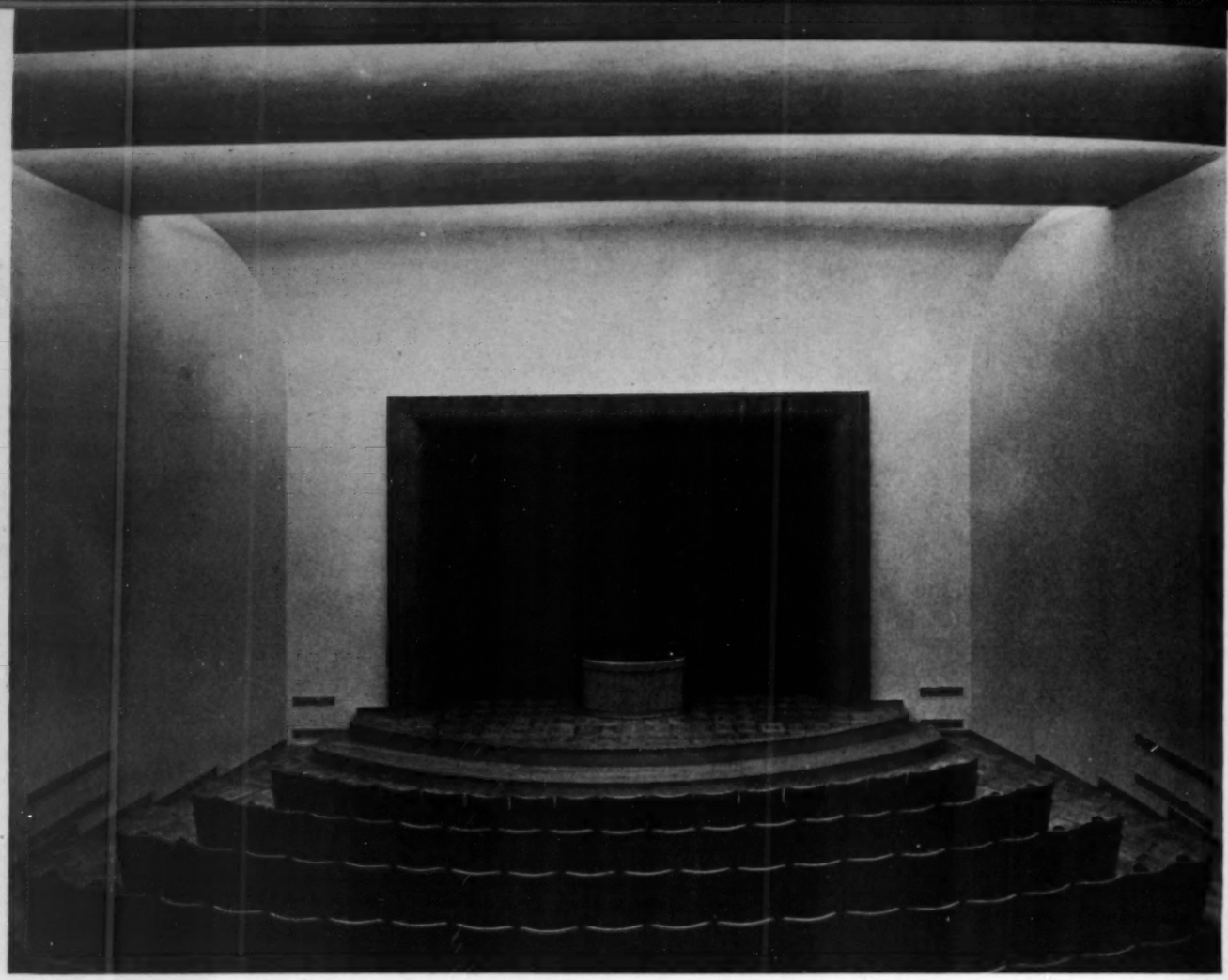
27. Hall
28. Meeting room
29. Chief office
30. Offices
31. Dining room
32. Office
33. Workmen's mess room
34. Studio
35. Offices
36. Laboratories
37. Projection booth
38. Telephone central
39. Passageways

SECOND FLOOR

40. Hall
41. Library
42. Librarian
43. Office
44. Laboratories
45. Passageways

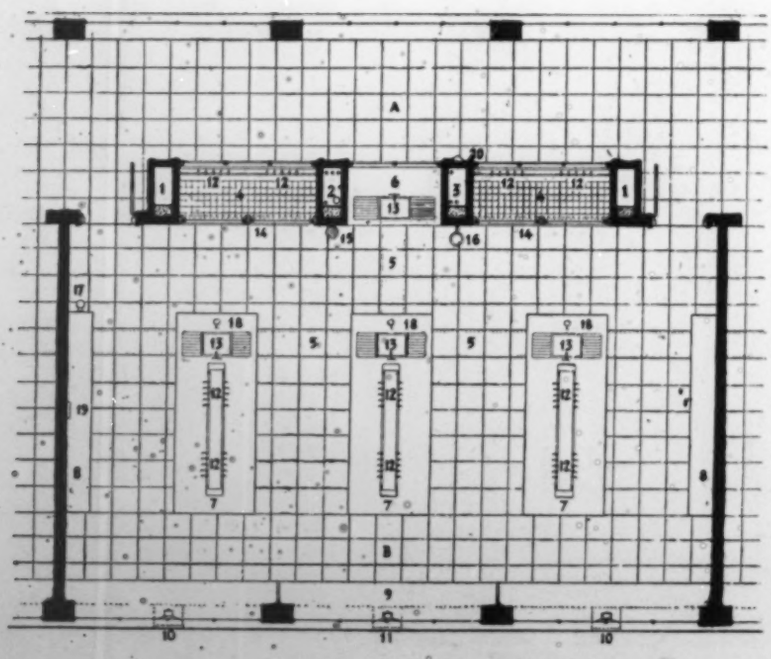
The museum serves also for leisurely access to the auditorium lobby beyond. Indirect lighting panels in the ceiling illumine the hall at night





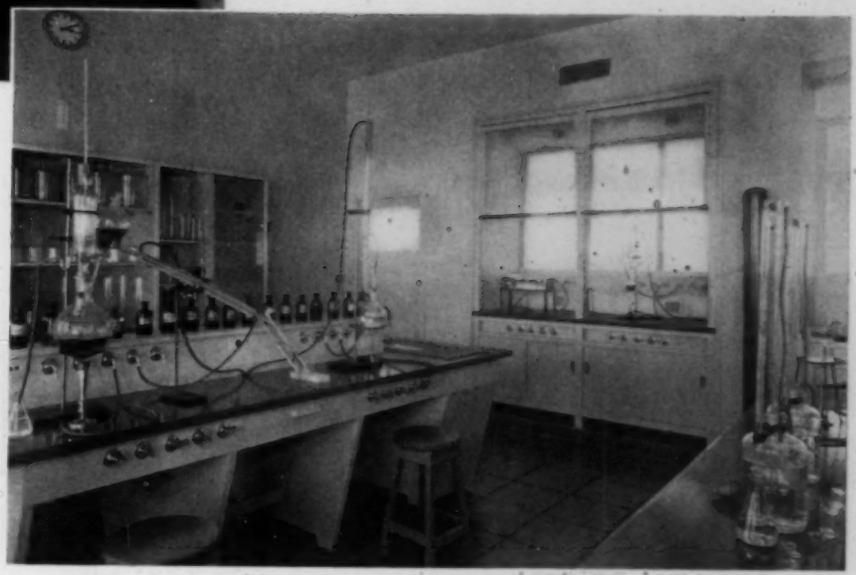
The simple and dignified auditorium seats 185 persons comfortably. Lighting again is indirect and pleasant

Below: plan of a typical laboratory showing the two retorts or experiment-hoods with a table and sink between them on the corridor side of the room. The three work tables are of wood, painted, resting on glass insulator cups. The legend explains the disposition of the equipment



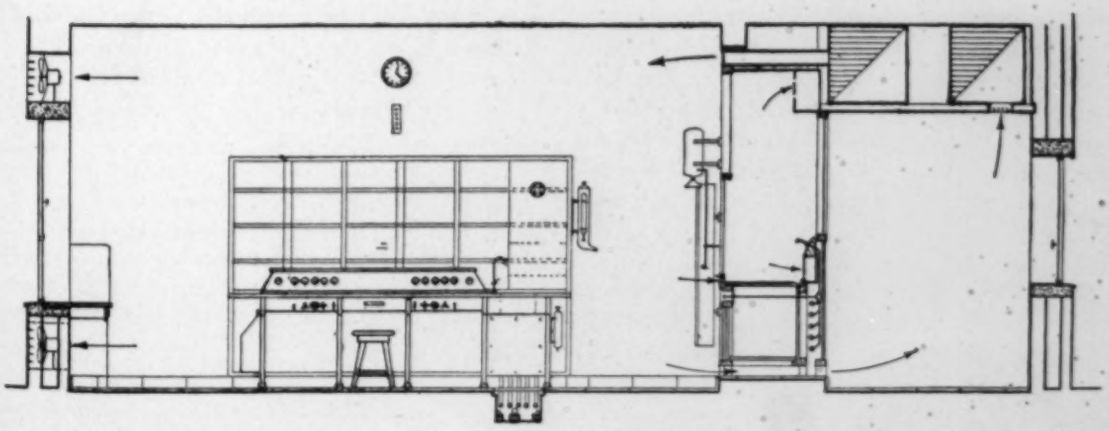
A. Corridor
B. Laboratory
1. Duct for extracting gas from retorts
2. Piping for cold liquids and electric cables
3. Piping for hot liquids
4. Retorts or experiment-hoods
5. Trench with removable cover, for piping
6. Washing table
7. Experimental tables
8. Storage cabinet
9. Desks
10. Exhausts for heavy gases
11. Exhaust for light gases
12. Cocks and faucets for liquids (compressed air, super-gas, cold water, hot water, steam)
13. Sinks
14. Slide doors of the retorts
15. Shield for assisting burnt workmen
16. Shower for those spattered with acids
17. Anhydric carbonic fire extinguisher
18. Carbon tetrachloride fire extinguisher
19. Clock
20. Person call system

A typical laboratory showing the sink ends of the work tables, the wall cabinet and in the upper-right corner, the emergency shower. Each work space is provided with hot and cold water, compressed air, steam, gas and electric outlets (220-volt, single-phase and 380-volt three-phase)



Typical work table and one retort or experiment-hood with its explosion-proof vertical-sliding doors. Counters under hoods are ceramic tile and each hood is equipped with feed-tube services similar to those of the tables, operated by handles outside the hood. Operating handles differ in shape so operator can identify each by touch

Left: a double-height laboratory with mezzanine. Below: section showing ventilating ducts, retort or experiment-hood construction, and underfloor pipe and conduit channel under sink-end of laboratory tables



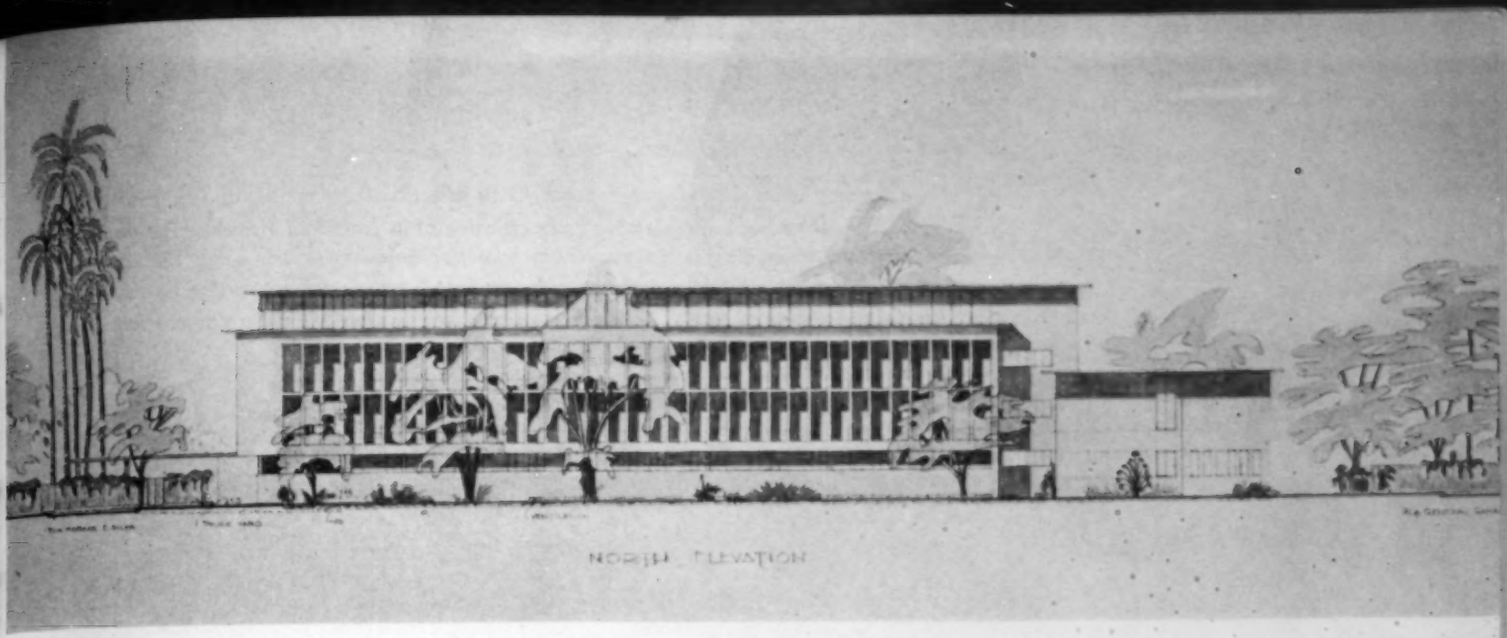
COMBINING RESEARCH AND PRODUCTION

A new building in Rio de Janeiro combines facilities for the development and manufacture of pharmaceutical products for Productos Roche, a subsidiary of Hoffmann-La Roche, Inc.

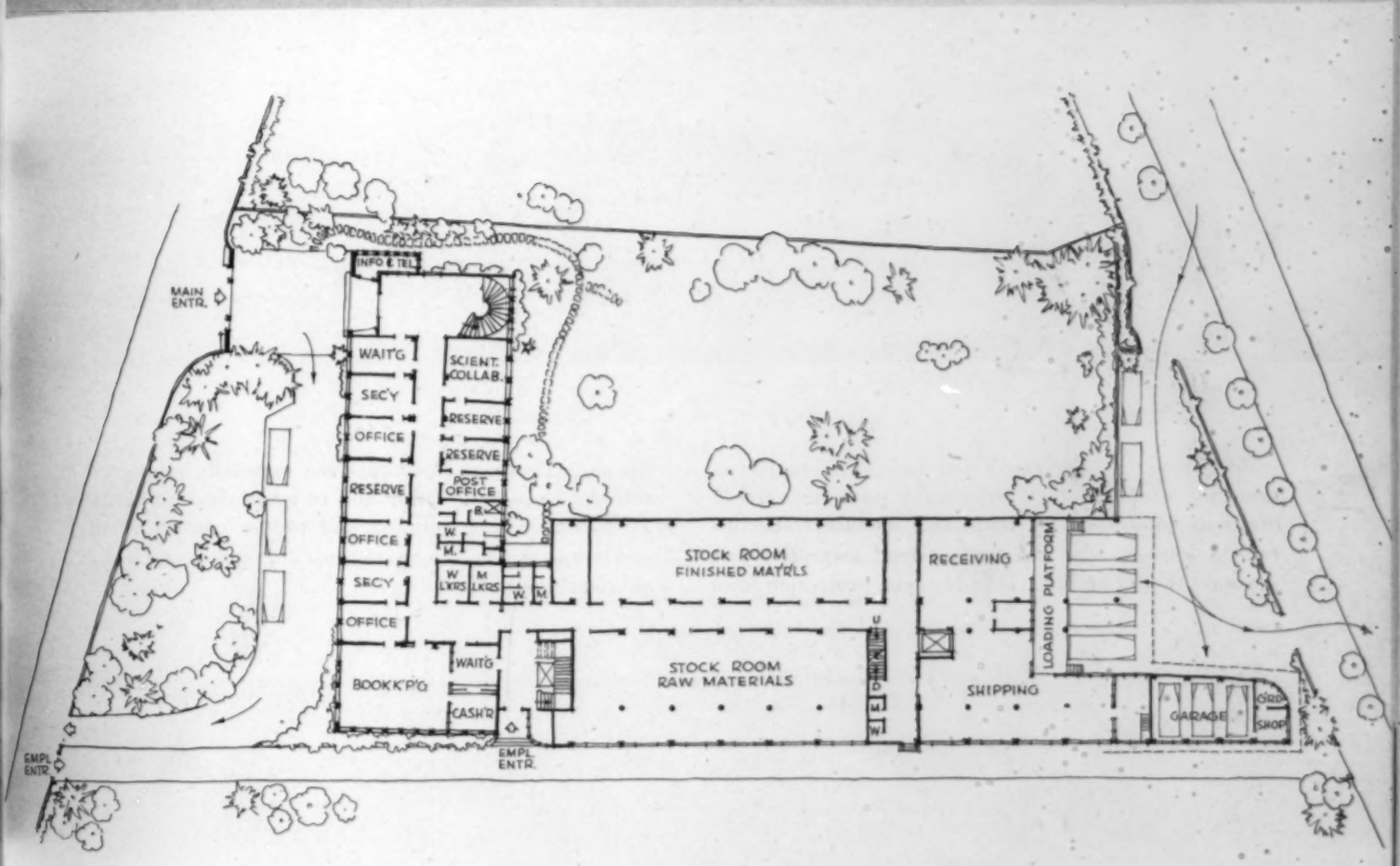
Louis Parnes, Architect

RESEARCH and production in the field of medicinal products such as vitamins, penicillin, tablets, syrups and drugs go naturally hand in hand. Logically then, they are housed in the same structure. Architect Parnes has provided therefore a plant embodying facilities for a "straight flow" process. Raw materials enter at the lower floor, flow up to the manufacturing areas and down again to delivery or storage departments. Above are the laboratories for development research, testing; and on the top floor are the employees' facilities such as locker rooms, showers, restaurant, social rooms, and roof gardens. The administrative offices are in separate wing fronting on Rua General Janabarro. Employees' entrance is, via a separate path, at the juncture of the two parts of the building. Freight traffic is entirely separate via Rua Moreas e Silva at the rear, an ideal functional division of circulation.

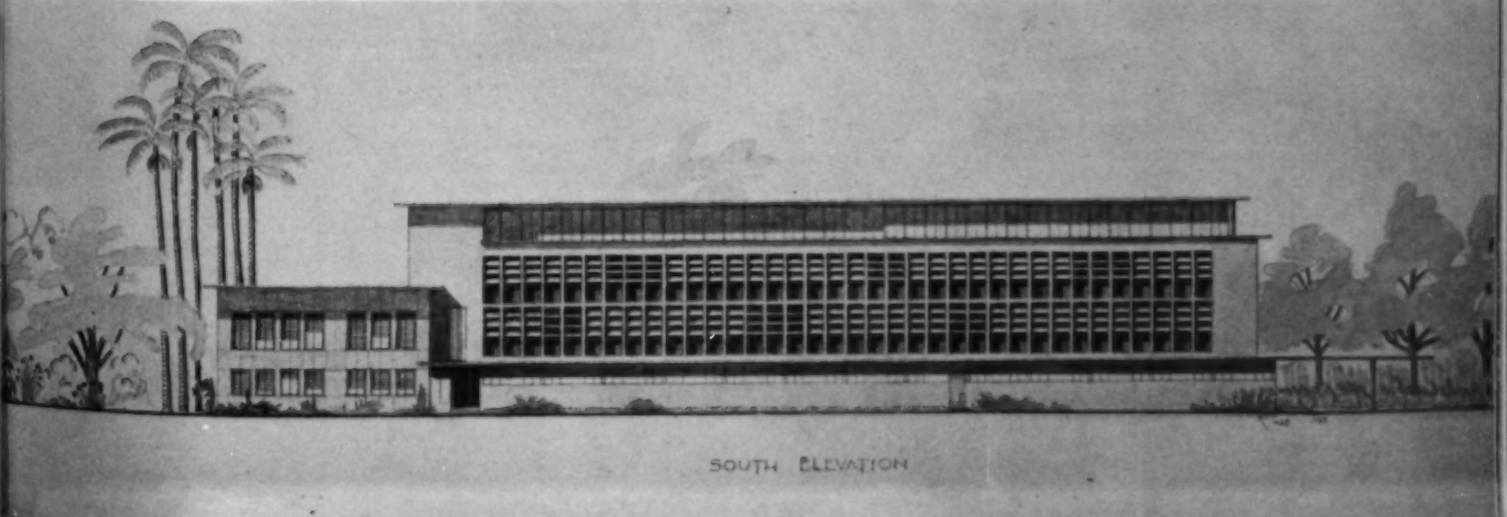
The plant is of reinforced concrete, the research and manufacturing portion concrete-faced (no plaster or other finish); the administration portion faced with large marble plates or veneers one inch thick. An interesting structural and functional feature of the building is the self-supporting monolithic spiral slab stair, in the administration wing.



NORTH ELEVATION

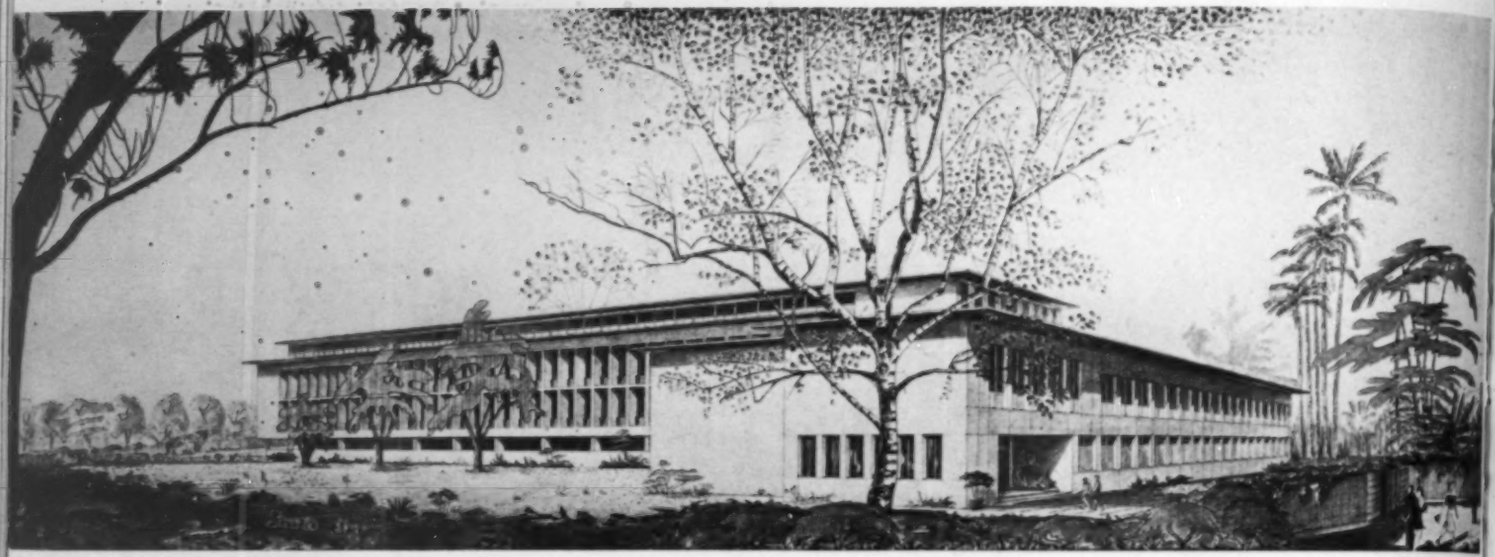


First floor plan

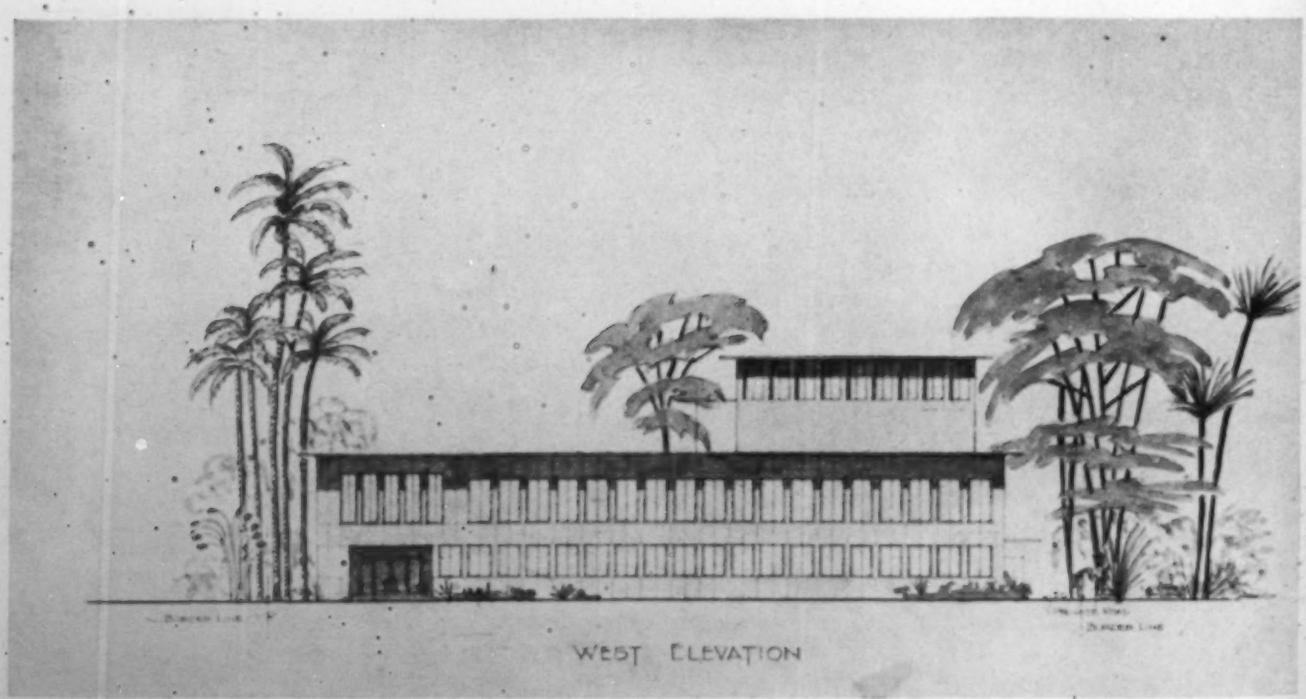


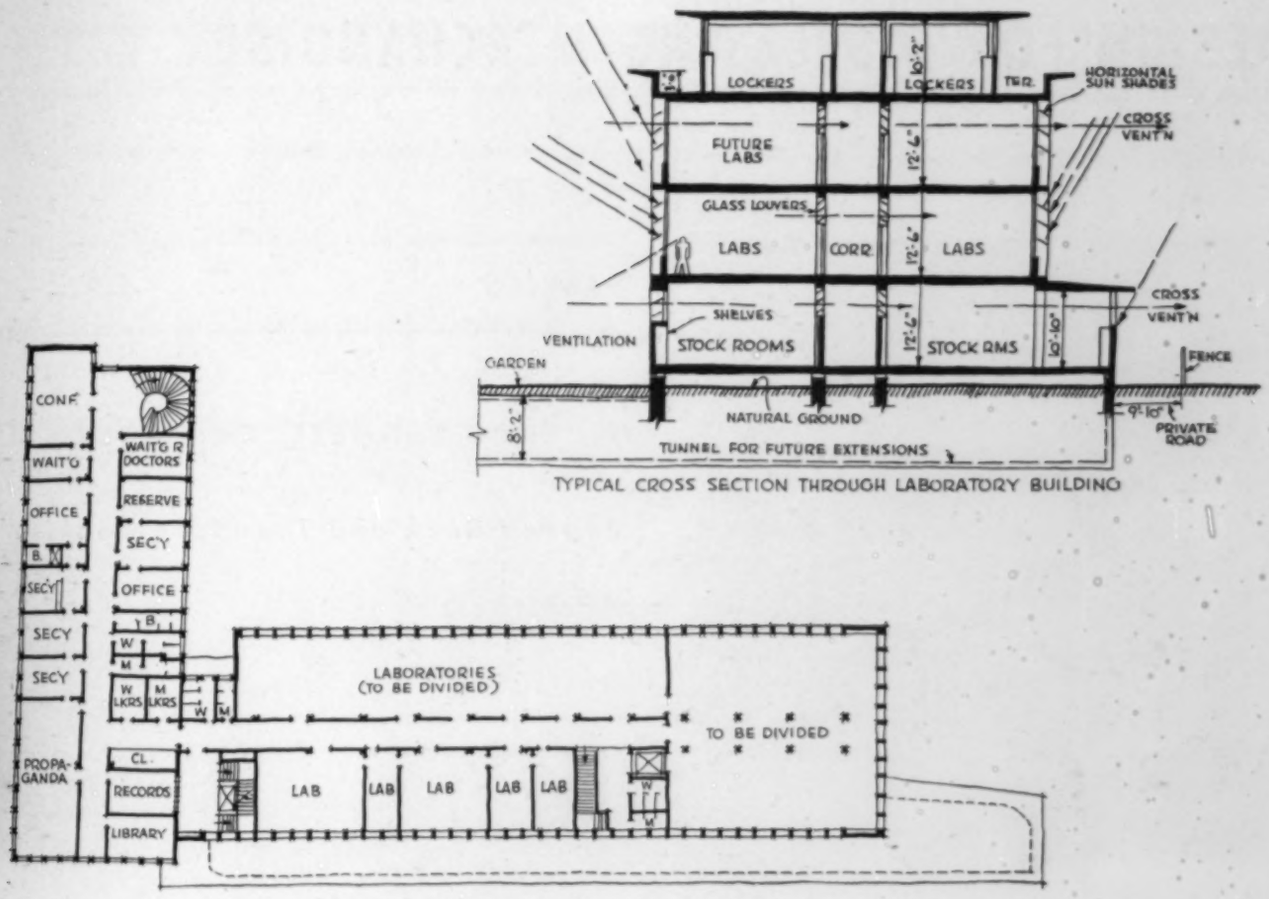
SOUTH ELEVATION

The building is unadorned and depends for its effect on the simplicity and richness of material and the natural pattern and proportioning of its functional elements. The main entrance to the building is at the northwest corner of the administration wing. The large spiral stair at the end of the entrance lobby leads to the conference room directly above the entrance and to second floor offices. The administration wing facades are faced with large slabs of marble veneer



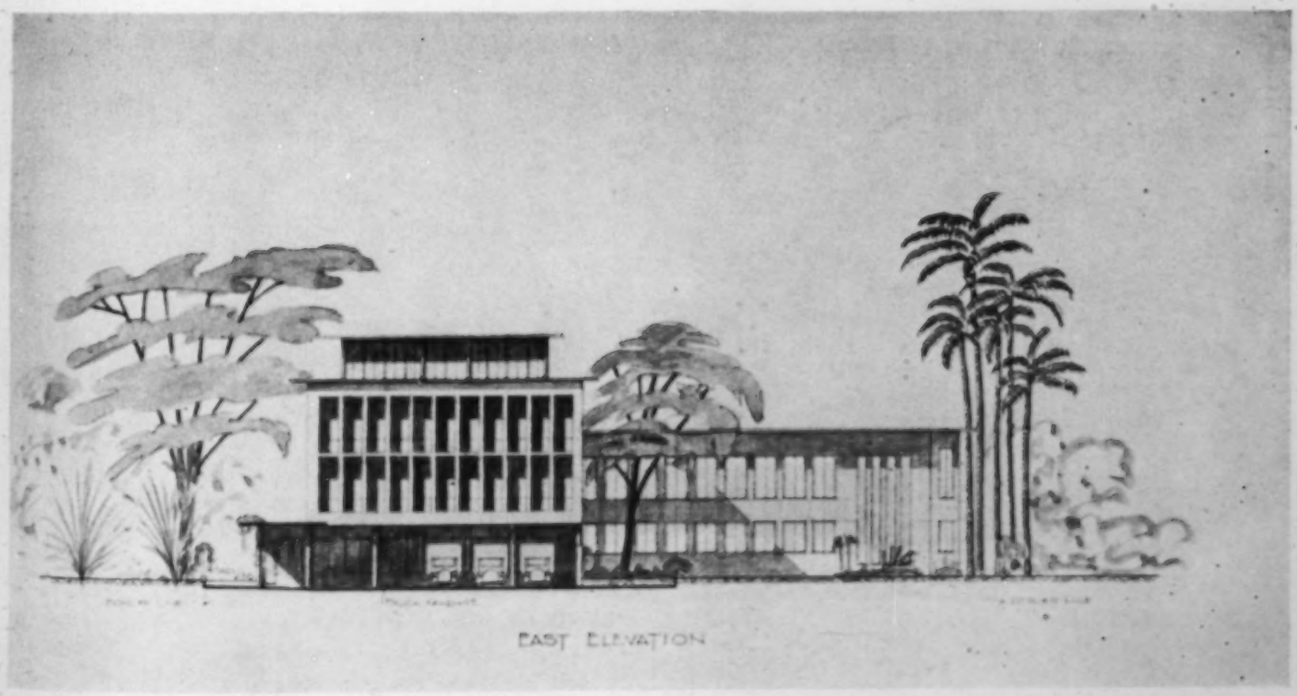
Protection from excessive sun radiation consists of thin but deep (13 feet) reinforced concrete vertical divisions equipped with horizontal movable asbestos-cement louvers. The flat roofs extend some five feet beyond the wall and provide additional protection from the sun. These roof canopies are especially reinforced to resist heat-deformation and to avoid dilation joints. To further assure comfort and proper control of air and temperature all rooms of the building are completely air conditioned.





TYPICAL CROSS SECTION THROUGH LABORATORY BUILDING

Second floor plan



EAST ELEVATION

DESIGN FOR DISPLAYING MERCHANDISE

FABRICS

RICHARD BENNETT, CHICAGO

Eugene Back and Theodore Yonkler

Architects

Kaufmann & Fabry Photos

Above: The Chicago unit of this men's tailoring firm uses a fabrics display idea that has already proved effective in its New York stores. When the displays are not in use, the wall is a series of battened panels in wood, which are permanently fixed in place

Above: Men's suitings are displayed on tall sliding racks mounted on overhead trolley tracks such as are used for garage doors. The customer can see a great number of fabrics quickly, in full-length folds, all in plain view and with uniform lighting

Left: View of racks from rear of store, with some racks in closed position, some pulled out. There are two in each slot

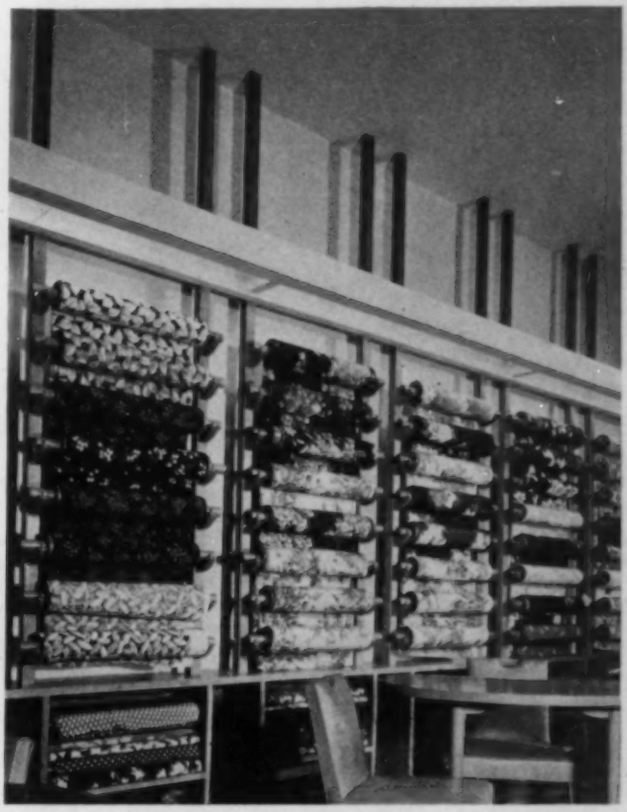
In store architecture, all of the designer's spider-like enticements come to a focus on the display of the actual merchandise. Coupled with the imperative allure is the need for mechanical convenience, to obviate as far as possible the spoiling of a sale through awkward handling of goods. Here is a collection of ingenious display ideas from recent stores and showrooms

FABRICS

SAKS FIFTH AVENUE, NEW YORK

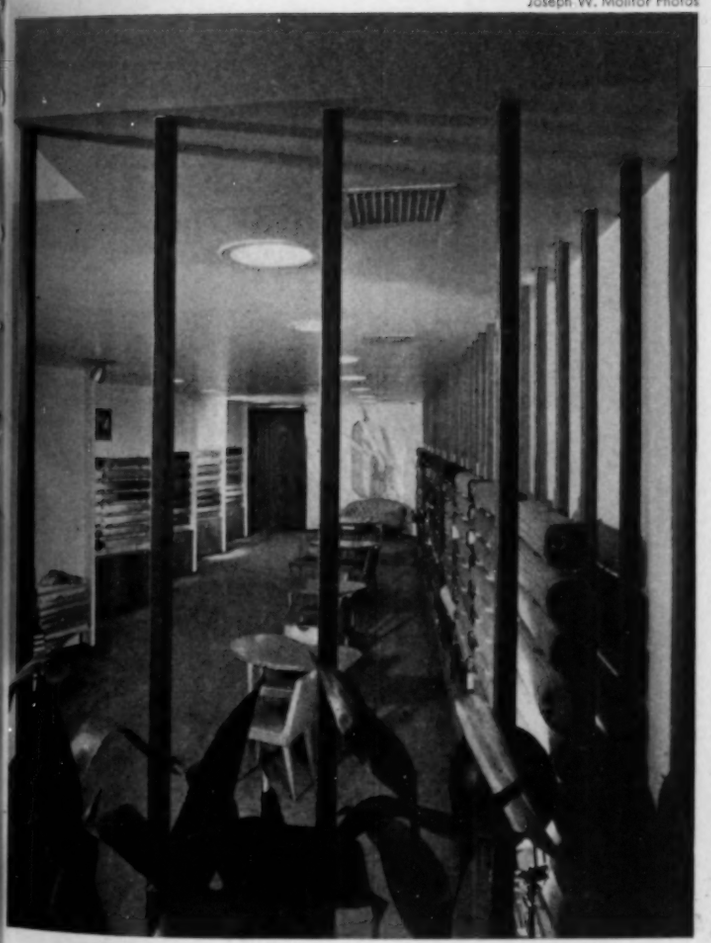
S. S. Silver & Co.

Designers



At Saks Fifth Avenue the racks of bolted materials on rollers along the walls make an intriguing array, and eliminate most of the awkwardness of handling bolts of cloth. Any fabric is easily unrolled for inspection by a patron, or the bolt is easily lifted off

Joseph W. Molitor Photos



Above and right: To gain space in a long narrow departmental unit, one wall becomes a series of displays, in angling passageways lined with wall-mounted bolt racks. The space below convenient wall height is developed for storage cabinets

COSMETICS

GOUBAUD BEAUTY BAR, NEW YORK

Hans Weiss and William Basser

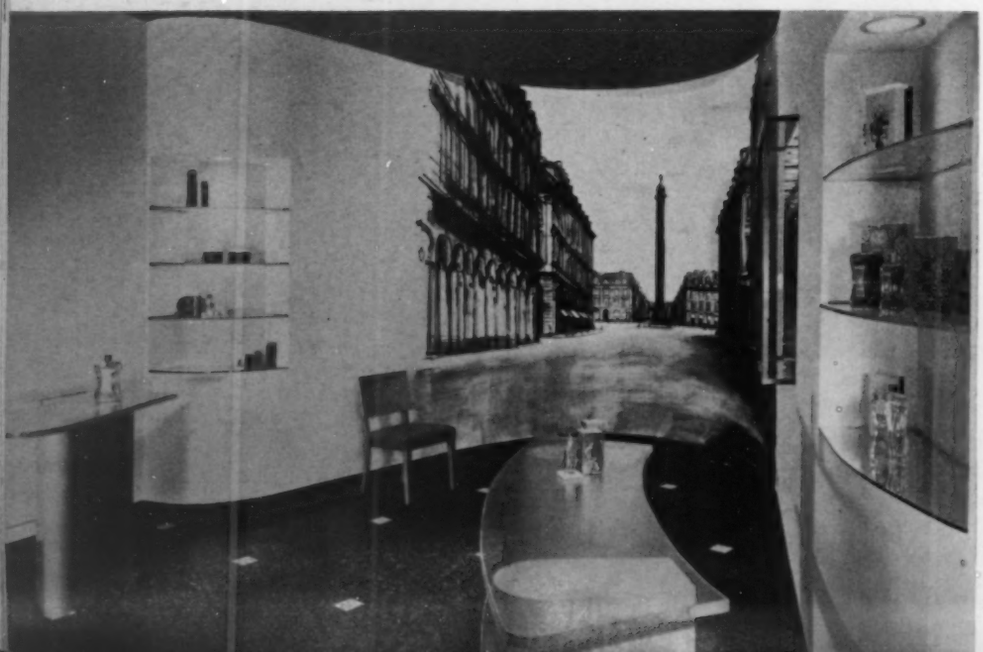
Designers

PERFUMES

PINAUD, INC., NEW YORK

Paul Bry

Designer



Two contrasting backgrounds for selling similar products, the one an ornate and feminine "bar" for beauty culture, the other a more neutral background for emphasis on a particular line of perfumes. The Parisian perspective painting is also emphasized, to proclaim the exotic origin

CANDY

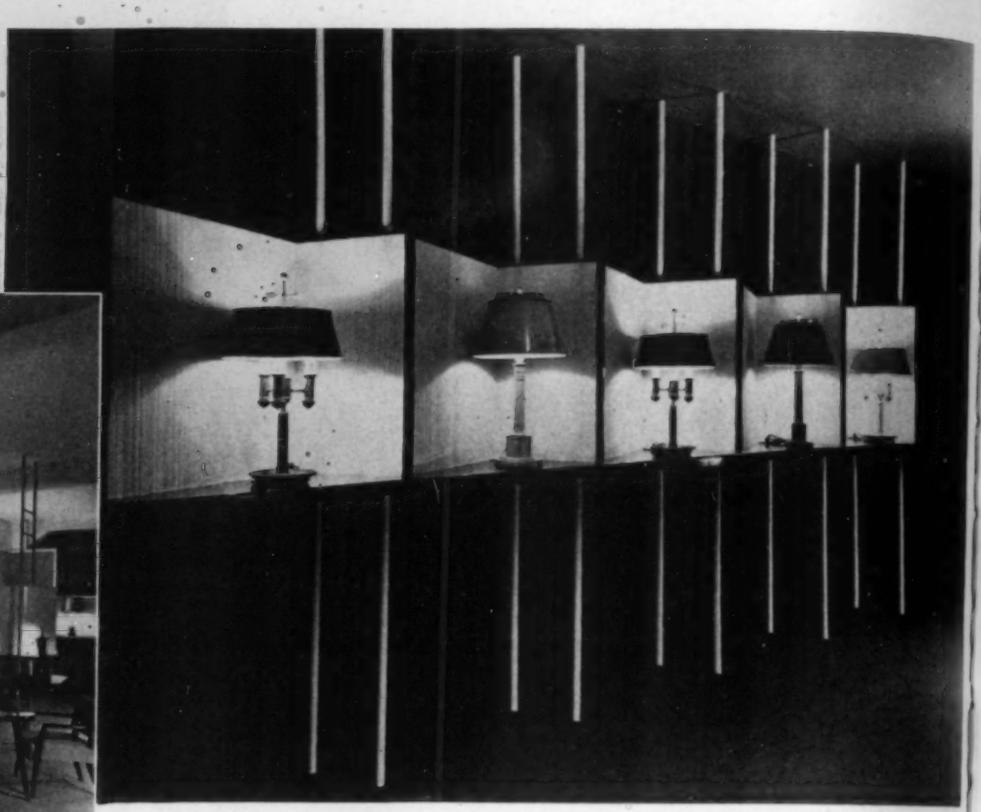
BARTON'S BONBONNIERE, NEW YORK

Hans Weiss and William Basser
Designers

Here the basic shadow-box idea appears in several variations. Above, a pattern of lace-trimmed display boxes on mirrors

Above: Here the shadow-box displays are scaled larger to attract attention at greater distance; the candy-stripe adds to the attention value. They are hung on glass panels lighted from behind

Right: Again the shadow-box idea, this time in a pattern of round boxes on the curving wall to catch the eye of entering customers. Since this wall encloses a traffic area, the boxes are recessed



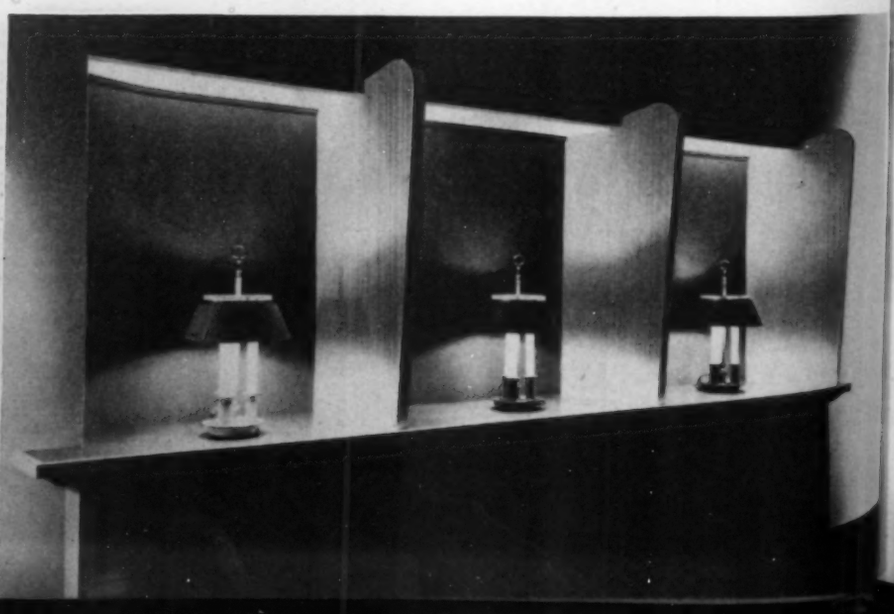
LAMPS

LIGHTOLIER SHOWROOM

Robert Heller Associates

New York

Designers



In these displays, table lamps escape the usual cluttered confusion of the department store counters. They get a chance to assert some individuality under conditions closely approaching those of their use either near to or far from the wall

Harold R. Stott Photos

CARPETS

WILF BROTHERS

Solomon Kaplan

Architect

Philadelphia

ELECTRICAL APPLIANCES

The rug department uses a massive version of the fabrics wall-type display together with the familiar floor pile. In the electrical appliance section, the saw-tooth wall gives good display to large items, sectionalized shelves for smaller ones

Gottscho-Schleisner Photos

YARNS

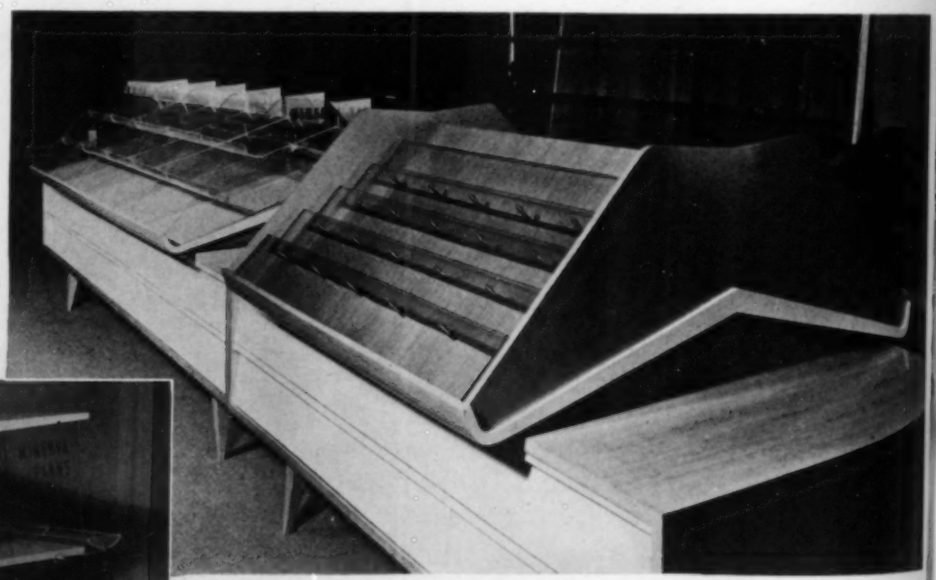
JAMES LEES & SONS

Raymond Loewy Associates

Designers

New York

Right: Balls of yarn are displayed in tiered plastic trays, sloped so that as one ball is removed the others roll down to the front. The fixture in the foreground displays knitting instruction books

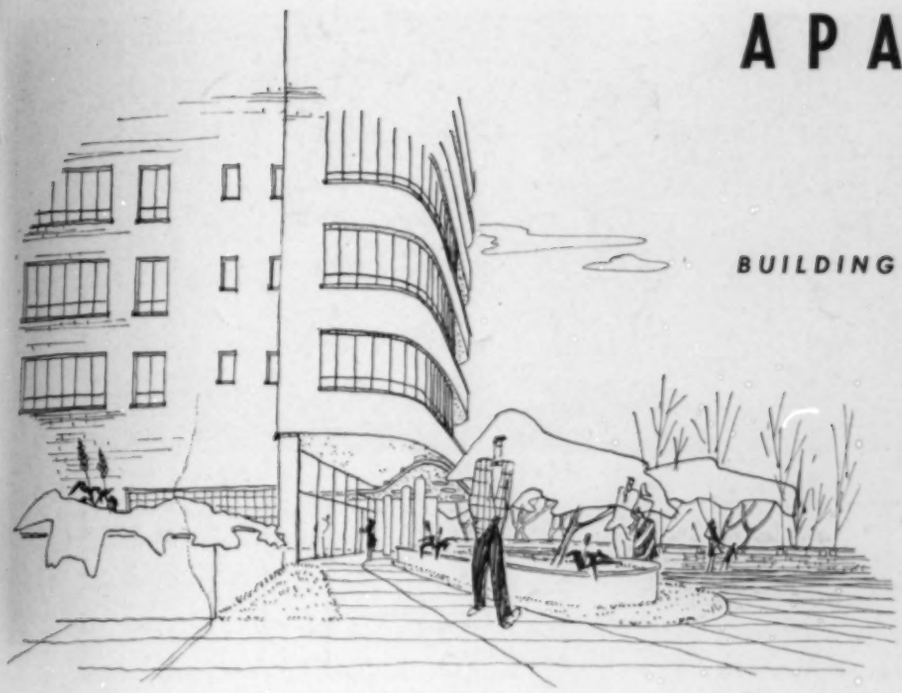


Sectionalized wall cabinets for skein yarn. Glass walls provide maximum visibility, and each glass-enclosed bin holds a full box of unpacked yarn. A little plastic tray in the front of each bin holds one skein out for convenient inspection by the customer

APARTMENTS

ARCHITECTURAL RECORD'S

BUILDING TYPES STUDY NUMBER 123



Berla and Abel, Architects (See page 100)

THE BUILDING COST FIXATION

By Emerson Goble

An architect remarked recently that four apartment projects were planned for each one that reached the construction stage. In other words, in three out of four cases the architect must roll up the sketches and tell his draftsmen to forget the whole thing. Why?

Is it building costs, restrictions, rent ceilings, material shortages, financing? Obviously it is not lack of demand. Obviously, too, it is not lack of enterprise, if four are trying for every one who succeeds.

If building costs come to mind as the first and final answer, the charts on succeeding pages may contain some surprises. Building costs *are* high, to be sure, but if we stop there we are quitting too soon. In the first place, we could be charged with pusillanimity. Costs of nearly everything are high. The problem is not how high they are in relation to the past, but how high in relation to the future. If we think building costs will stay high, we had better find a way to proceed now.

In the second place, history tells us that high building costs have not proved much of a deterrent in the past. Rightly or wrongly, most volume building was done in high-cost periods. Perhaps we should not jump to any conclusion from this fact, but we ought at least to take another look at costs.

Pursuing its studies of rental housing, the RECORD has asked two experienced apartment builders — both of them architects, by the way — for today's cost studies. These have been analyzed and charted in comparison to published "representative" figures by the Federal Housing Administration. The FHA costs are taken as "par," and the others as practical attempts by professionals to do at least as well as bogey.

One of the pros did very well — he is busy with a number of projects right now. This is Emil A. Schmidlin, architect of East Orange, N. J. The other one played on an entirely different course; he packed up his clubs and gave up the game. The interesting thing is this:

Both used exactly the same construction cost. Both builders calculated construction costs at 60¢ per cu. ft. This compares with a prewar average of 35¢.

Several interesting conclusions come out of the individual and comparative analysis of each cost tabulation. Perhaps the really significant one right at this moment (with many federal controls still holding) is that relief of the rental housing shortage is likely to be spotty — it is impossible to build in some localities; in others building will proceed.

Some other conclusions are:

1. Land cost assumes remarkable importance. In the Westchester example it was $2.50 a sq. ft.; in New Jersey, just under 30¢. This item was the largest single factor determining success or failure.

2. Taxes run a close second. In terms of yearly cost taxes caused the widest divergence.

Typical of FHA-financed rental projects in New Jersey are these garden apartments now being built by Emil A. Schmidlin, architect

3. The FHA financing scheme, while leaving a thinner equity, does become quite a factor in fixing the percentage of annual "profit."

4. Assume 100 per cent occupancy and the margin of profit widens very rapidly, as compared with a long-term vacancy average. This would make a terrific difference in the early years of a project built at high costs in a period of heavy demand.

5. A small rent increase would widen the margins still more rapidly. The Westchester builder would lose money at 100 per cent occupancy at today's maximum rentals; but increase rentals by 25 per cent and his project does better than par. This point seems worth stressing: it does not require any staggering rent increase to change the entire picture of costs.

6. The income tax status of the owner would make a great difference. A corporate income tax would eat heavily into that little profit triangle at the top of the charts. (See "The Rental Housing Mystery," by Miles L. Colean, in the February ARCHITECTURAL RECORD.)

7. Assuming 100 per cent occupancy at adequate rentals, the owner would find it possible to amortize his investment more rapidly in the early years. Some figuring on this possibility might relieve some of his fears about undertaking to build at high costs. It might also prove the feasibility of some current proposals for permitting temporarily high depreciation in figuring income taxes, although, as Mr. Colean has pointed out, the owner must be prepared for higher taxable income in the later years.

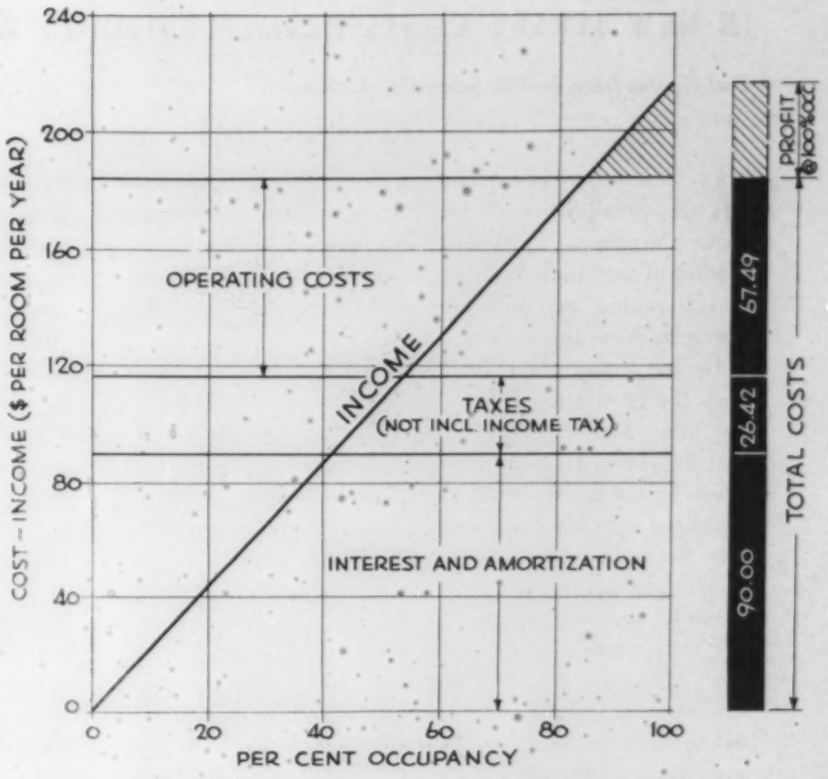
There is another conclusion that is not quite so apparent in the charts: future cost trends are likely to be more important to the owner than any of the messages in current calculations. If the value of the dollar is to continue downward as it has in the past 50 years, the owner will do pretty well, even if costs of construction should decline a little before the inflation trend again sets in. If, on the other hand, today's costs should prove to be seriously high in relation to future ones, there would be a wave of bankruptcies. To see these effects graphically it would only be necessary to move upward or downward the angling line of "income," according to an assumed change in rental levels. The charts show rather clearly the stupendous effect of fixed costs in a rental project. Move the income line downward, just a little, and it soon gets under the level of fixed costs. But move it upward (assuming rental increases), and it rapidly widens the margin of profit. A history of the costs of the City and Suburban Homes Company (published in 1938 by FHA) shows that in the *past* 50 years their rentals for specific projects increased sometimes far over 100 per cent. In such a case the fixed costs of original construction become meaningless: the determinants then are later costs of modernization, replacement, operating, taxes and so on.

Thus if today's costs are but slightly higher than future averages, the charts would say there should be sufficient margin in a few profitable years to make the venture attractive right now. Or, that it would require very little rental increase to produce a boom in rental building.

In the "old days" the speculative builder used to say he would not undertake a project unless he could get his money out in five years. According to the charts, it would not be too difficult to do just that. All it would take is a few years of good rentals and full occupancy.

Cost and Income statement for "ABC Housing Corp.," Washington, D.C., two- and three-story walkup apartments of 60 units, 234 rooms.
Rents: $70.70 per unit; $18.13 per room.

COSTS (Totals)	
Land — 125,800 sq. ft. @ .238 per sq. ft.	$ 30,000.00
Landscaping and utilities	17,552.00
Construction	292,390.00
Arch. and Bldr. fees, etc.	34,094.00
Financing, legal, insurance during construction	16,264.00
Total estimated requirements	$309,300.00
INCOME (per room per year)	
Rental income ($50,904 ÷ 234 rooms)	217.54
EXPENSES (per room per year)	
Interest and amortization (6%)	90.00
Real Estate taxes	26.42
Operating cost	67.49
Vacancies (7%)	15.23
Total expenses	$ 199.14
Cash available for income taxes, corporate taxes, dividends, and surplus	18.40



FHA EXAMPLE SETS PAR FOR BUILDER'S PROFIT

THE normal way of figuring a project's costs to test its soundness is simply to make a tabulation of figures such as the one above to see how income matches cost after due allowance for vacancies. This would produce a simple bar chart such as the one at the right above. However, if all of the costs are charted against percentage of occupancy the cost picture becomes more graphic, particularly when, as now, high occupancy can be expected.

The chart is simply drawn: all annual costs are assumed to be fixed, thus the cost lines are parallel to the base (it might be said that operating costs will vary somewhat with percentage of occupancy, but as a practical matter the variation would surely be negligible — any operating savings with high vacancies would be eaten up by renting or decorating expense). The income does, of course, vary in direct relation to occupancy, and becomes a straight line from zero to maximum income.

Immediately it becomes apparent that the only profit in a rental building (with its high fixed costs) comes in the upper triangle. In this FHA "par" example, profit begins at about 85 per cent occupancy. It goes up rapidly approaching 100 per cent occupancy.

The author drew such a chart many years ago to show how quickly disaster comes when either rents or occupancy is reduced. Today, when occupancy is presumed to be 100 per cent, the chart also illustrates how rapidly the picture can change in the other direction.

FHA officials might be horrified to know, for example, that this standard set of costs shows a 20-per cent profit on the owner's equity, provided he achieves 100 per cent occupancy. A slight dash of cold water comes next — the FHA sample sheet calls it, not profit, but "cash available for income taxes, corporate taxes, dividends and surplus." In any case 20 per cent sounds like good business.

Move back on the chart to 93 per cent occupancy (the FHA figures 7 per cent for vacancies) and the "profit" has dropped to 10.9 per cent. This is of course based on the owner's equity of something over 10 per cent.

All the basic cost figures were taken from an FHA tabulation in its booklet "Rental Housing for Veterans" published last September. The only thing changed was the allowance for amortization, which has recently been cut from 2 to 1½ per cent.

In relation to the figures shown on the next two charts it is worth noting that land cost in this FHA example is about 24 cents a sq. ft., and the total cost per room runs about $1668. This latter figure is just nicely within the maximum allowable figure of $1800. The rentals average $70.70 per family unit, or $18.13 per room per month. In the next two calculations, showing actual projects, costs per room ran in one case $2975, and in the other $2214. Under the $1800 ceiling, then, neither of the other two projects could be built, even though one of them shows that it would pay out nicely under the present maximum rentals.

IN NEW JERSEY COSTS PERMIT BUILDING NOW

Cost Figures from Emil A. Schmidlin, Architect

MR. SCHMIDLIN is currently quite enthusiastic about the possibilities of building apartment buildings under the present FHA Title VI financing scheme. As a matter of fact he is building a number of projects now and is acting as consultant for several more in the northern New Jersey area.

He has given here today's true cost figures for that area. To be strictly precise, these costs are not those of any given project. He took the 60¢ cube cost because it just happened to match exactly the figure given by the Westchester builder; cube costs for non-fireproof, walkup buildings actually vary from 58 to 61¢, and that is the way they are currently figured by FHA.

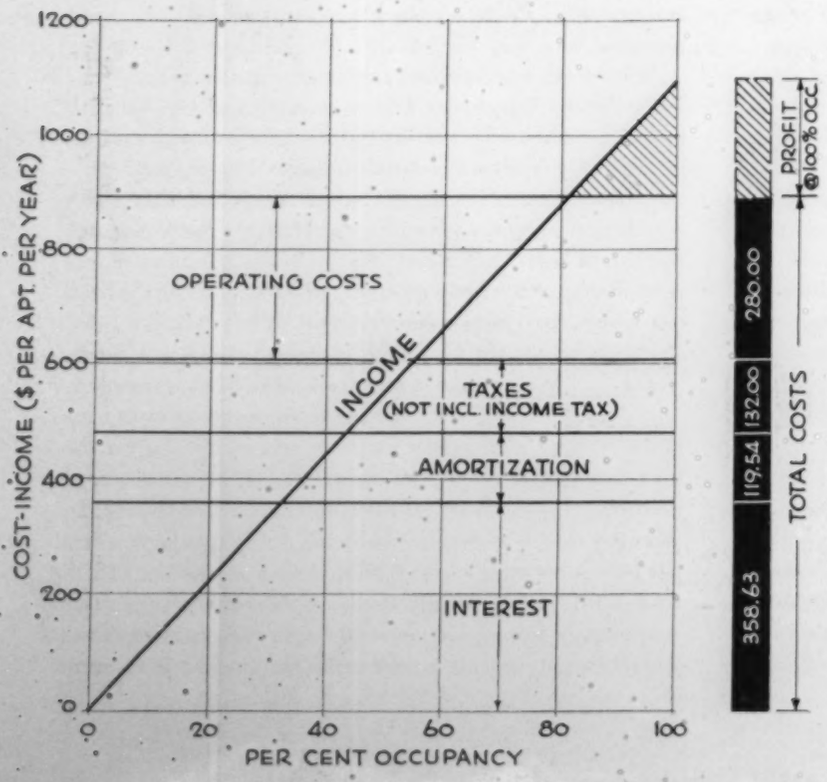
The principal difference between his costs and those from Westchester are in land costs: 30¢ against $2.50 per sq. ft.; and in taxes: $132 per four-room apartment per year against $325. He has also changed the financing arrangements to use the Title VI method. There are other differences — he uses 1700 sq. ft. of land per apartment as against 900 in Westchester. The four-room apartment is slightly smaller in New Jersey — 12,000 against 14,000.

These differences when transferred to annual costs show that he would come out pretty well, even though in Westchester County the same costs of construction would show a loss.

How well is indicated by some analysis of the profit triangle in the chart. In this example income crosses total costs at 81 per cent occupancy, and the overall profit is just slightly better than in the FHA example. At 100 per cent occupancy it amounts to 24 per cent, at 95 per cent occupancy it is 18 per cent. That is, of course, 18 and 24 per cent on an assumed 10 per cent equity. It should be remembered that there might be some theory in the assumption of $92 per month rental for a four-room apartment. In an actual case the OPA-FHA rentals might be fixed at a somewhat lower level. As a practical matter, however, it is interesting to note that even under 60¢ building costs and maximum allowable rentals it is perfectly possible to work out a project that makes a good showing.

Mr. Schmidlin points out further that the annual amortization under the FHA set-up is figured as a cost item but is actually a saving, or at least a safety factor. It would seem to be only reasonable cost accounting to figure depreciation as a cost item in what is after all classified as a "wasting asset." On the other hand the FHA has announced its intention to use considerable discretion in helping builders through any difficult years that might be ahead. In other words in a depression period of minor severity it would be perfectly feasible to waive the amortization temporarily.

Even without such help from the mortgagee, however, he would have a margin of safety of his own. If in the early years of high occupancy he could set aside a surplus fund he would be prepared for trouble.



Cost and income statement for various two- and three-story apartments in New Jersey.

COSTS (per 4-room apartment)	
Land—1700 sq. ft. per 4-room apt.	$ 500.00
Bldg.—12,000 cu. ft. per apt. @ 60c per cu. ft.	7,200.00
Financing, architect's and builder's fees, etc.—15%	1,155.00
Total cost of 4-room apartment	$ 8,855.00
INCOME (per 4-room apartment per year)	
OPA rent allowed $80 per month per apt.	$ 960.00
Services allowed—$3 per room per month	144.00
Total income allowed	$ 1,104.00
EXPENSES (per 4-room apartment per year)	
Interest—4% + ½% on 90% mtg.	$ 358.63
Amortization—1½% (first year)	119.54
Taxes—$33 per room per year	132.00
Operating—$70 per room per year	280.00
Vacancies—5%	55.00
Total costs	$ 945.17
PROFIT (before income taxes)	$ 158.83

NEW YORK BUILDER WOULD NEED HIGHER RENTALS

A BUILDER in the Westchester area of New York who has for years operated his own projects recently made these calculations for a building to adjoin an existing one. He quickly discovered that the arithmetic did not work out well, and offered these costs as proof positive that under present controls he must sit on the sidelines.

There is no argument there. With the land costs and taxes indicated, coupled with today's construction costs, he is through before he starts.

The chart is interesting, however, to show what might happen if the rent ceilings were abandoned. He has proved rather definitely that he is in a high-cost location and that rent ceilings here prevent any sound financial structure. It is natural to assume that in such an area rentals would be fairly high were it not for existing ceilings. It would not be difficult for a soap-box orator to convince his listeners that if there were no restrictions rents would quickly double. The chart indicates that this is by no means necessary. The added line for income represents an increase above existing ceilings of only 25 per cent. That would mean a rental of $115 per month for a four-room apartment in a rather wealthy community.

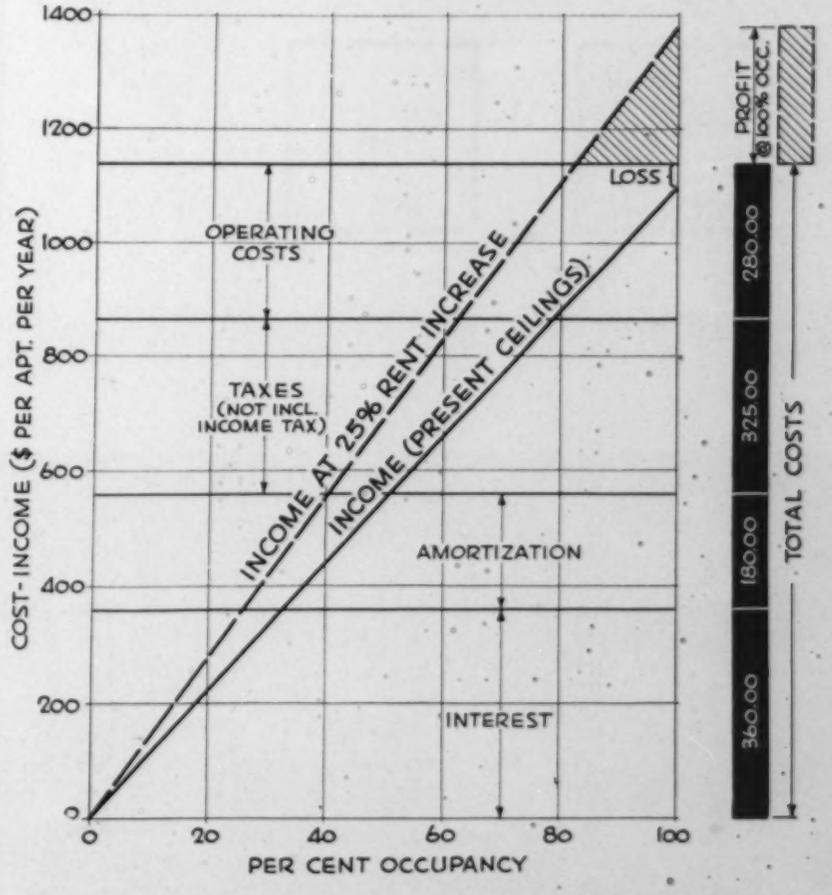
The new line on the chart shows that a 25 per cent rent increase would make his project slightly better than the par set by the FHA. His income would match operating costs at 83 per cent occupancy, and the income line of the chart takes a sufficiently higher angle to just about match the other two examples.

In calculating overall profits he apparently does not do quite as well as the appearance of the chart seems to indicate, for in this case his "profit" must be figured against a 25 per cent equity instead of the 10 per cent assumed in the other instances. Nevertheless, at 95 per cent occupancy he would show a rate of 5.6 per cent. At 100 per cent occupancy the figure is 8 per cent.

In the succeeding years his results are not so easy to follow. He does not have the fixed rate of interest and amortization. He shows an amortization of 2 per cent per year, which presumably is a flat annual rate of reduction of the mortgage. If he actually paid this each year, his interest would be declining gradually. He already starts with a more conservative original loan, with presumably a safer margin for trouble, even if it does not show up in the percentage of "profit." The reason it does not show so readily, of course, is that while the rate is lower, the actual amount is higher. It will be noted that these differences in financing will also result in different income tax impositions.

Cost and income statement for small apartments in Westchester Co., N. Y.

COSTS	
Land—900 sq. ft. per apt. @ 2.50	$ 2,250.00
Bldg.—3500 cu. ft. per room, or 14,000 per apt.—@ 60c	8,400.00
Financing, architect's and builder's fees, carrying charges during construction, incorporation, etc. —15%	1,250.00
Total cost for an average 4-room apartment	$ 11,900.00
INCOME	
OPA rent allowed per apartment—$80 a month	$ 960.00
Services allowed—$3.00 a room a month	144.00
Total income permitted	$ 1,104.00
EXPENSES	
Interest (assumed 75% mtg.) $9000 @ 4%	$ 360.00
Amortization—2%	180.00
Taxes (assumed assessment at $10,000) @ 3¼%	325.00
Operating—today's minimum $70 a room a year	280.00
Vacancies—5%	50.00
Total expenses	$ 1,195.00
BALANCE Loss	$ 91.00

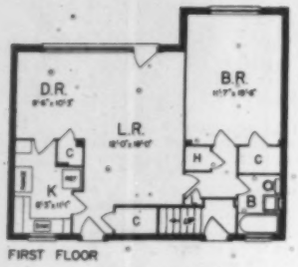


Some of Parkmerced's buildings are monolithic concrete. On most blocks, however, construction is concrete to the first floor with wood frame and stucco above. Coverage by buildings is less than one quarter of the total 200 acres

HIGH STANDARDS, LOW RENTS, PARKMERCED, SAN FRANCISCO

Metropolitan Life Insurance Co., Builders

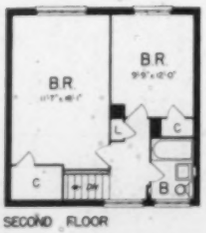
Leonard Schultze & Associates, Architects



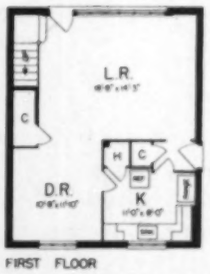
FIRST FLOOR

SIGHTING high on convenience, openness, sunlight and related amenities of environment for 2531 middle-income families, the builders managed to hold their aim steady, despite wartime preventions, to the extent of completing two thirds of this project by early 1945. Rentals continue to range from an average of $54 monthly for a one-bedroom suite to $82.50 for a three-bedroom duplex. Like Parklabrea at Los Angeles (see ARCHITECTURAL RECORD, May '46, pp. 88–90), also created through the substantial investment resources of the Metropolitan, Parkmerced raises a high standard, and hope and inspiration, too, for crucially needed housing developments to follow.

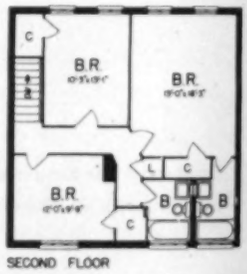
FIRST FLOOR



SECOND FLOOR



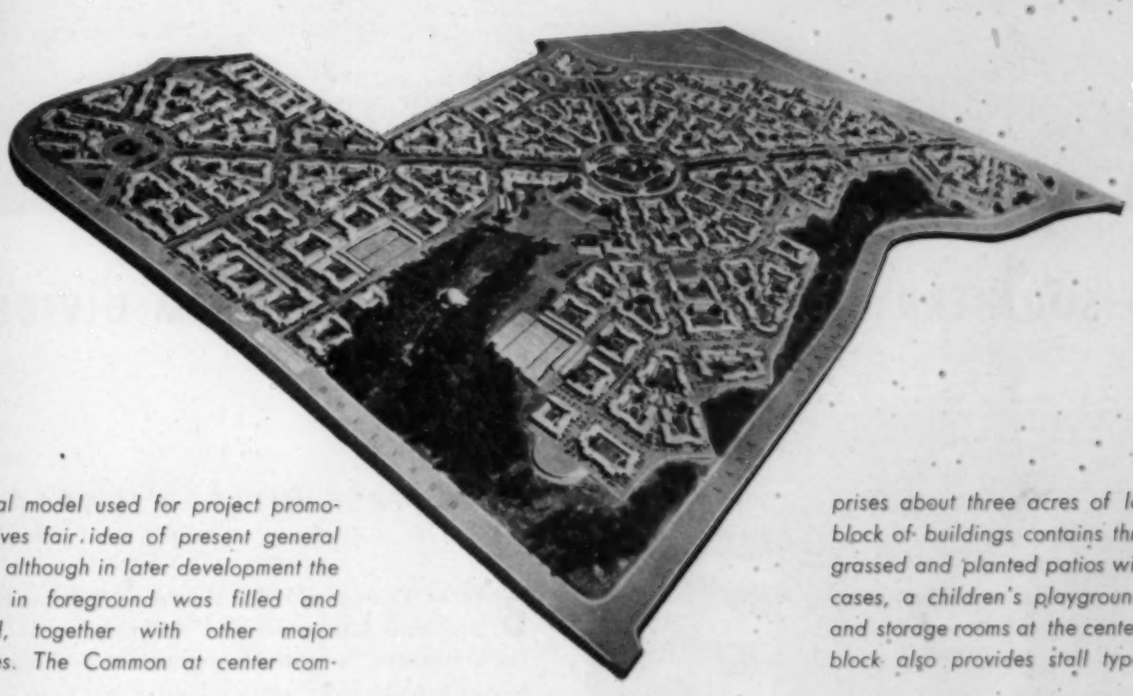
FIRST FLOOR



SECOND FLOOR

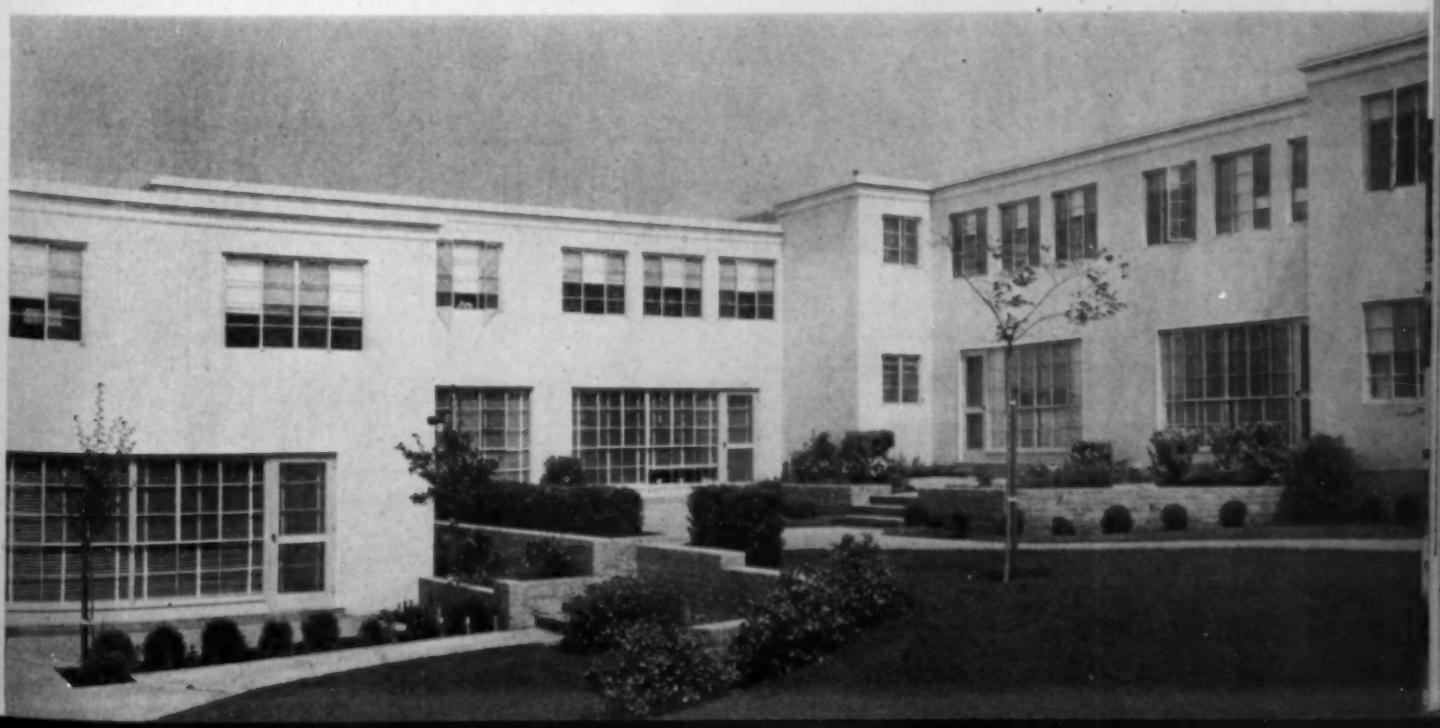
Top plan: One-bedroom suite on second floor is identical, except that closet is over access stairway. Two plans, right: Second floors extend over entrance passageway to interior of block. Kitchens face streets; all living rooms and most bedrooms overlook patio lawns

Gabriel Moulin Photos



Model: Worsinger Photo

Original model used for project promotion gives fair idea of present general layout, although in later development the ravine in foreground was filled and graded, together with other major changes. The Common at center comprises about three acres of lawn. Each block of buildings contains three or four grassed and planted patios with, in most cases, a children's playground, laundry and storage rooms at the center. Average block also provides stall type garages

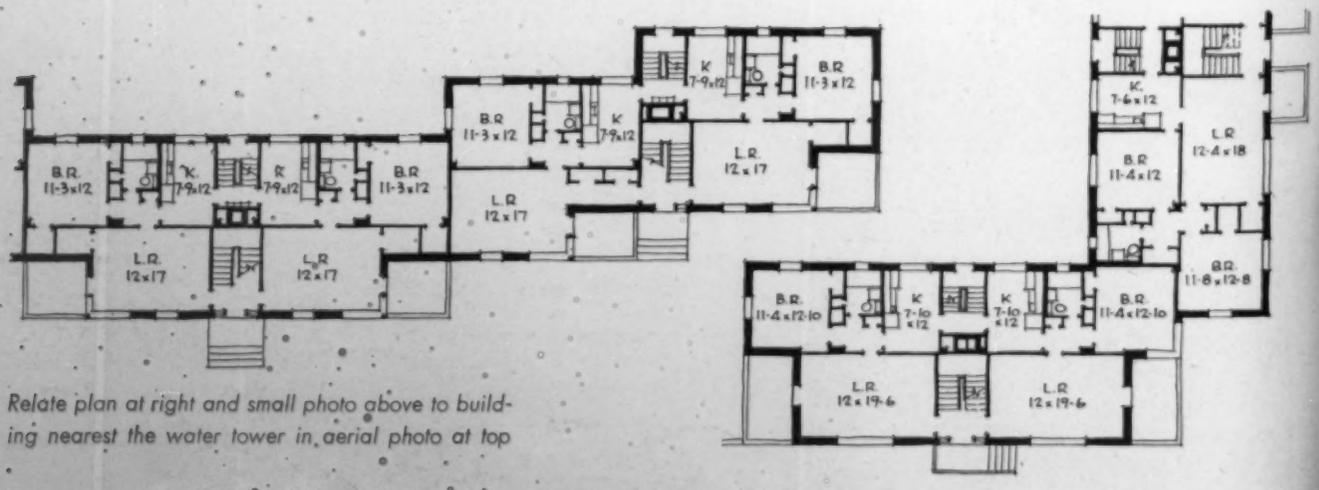


William Dunn Photos

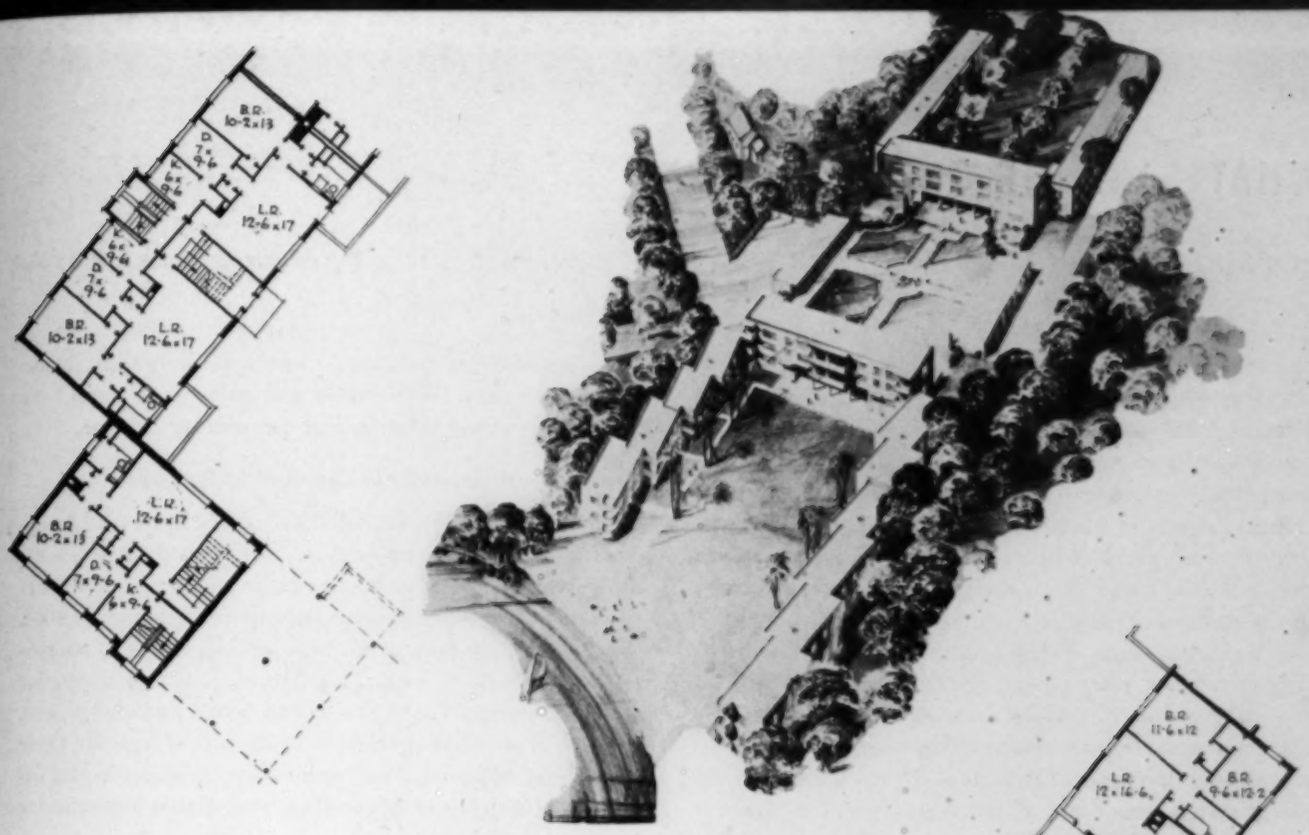
TWO SOUTHERN GROUPS PLANNED FOR LONG TERM DIVIDENDS

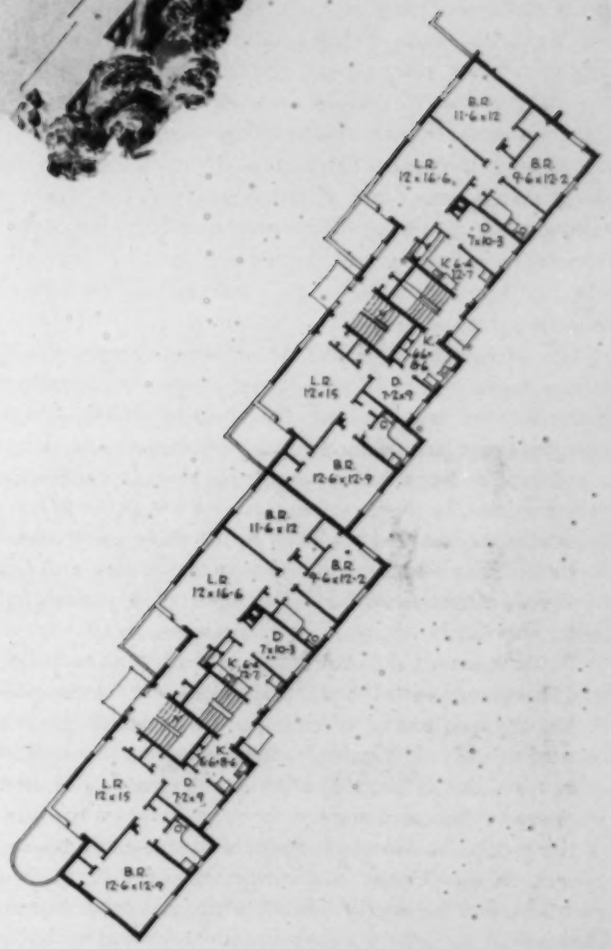
PEACHTREE HILLS, ATLANTA, GA.

BOTH at Peachtree Hills, shown on this page, and at Highland Lakes, across, "attempt was made," say the architects, "to provide permanent buildings for the lowest possible cost, since a limited but long term dividend was the object of the investor." At the same time, in both cases, heavily wooded rolling sites were capitalized to give tenants the pleasantest of possible natural surroundings. Buildings were fitted to topography to minimize grading and to retain trees, and oriented to provide maximum sunlight and open view for each unit.



Relate plan at right and small photo above to building nearest the water tower in aerial photo at top





Burge & Stevens & Associates

Architects-Engineers

HIGHLAND LAKES, ORLANDO, FLA.

MATERIALS and equipment for both jobs are practically identical and were chosen with regard for a minimum of maintenance. Footings, framing, floors and roof structures are reinforced concrete; roofing is 20 year built-up. Exterior walls are hollow-clay tile, cement stuccoed. Interior partitions are hollow clay tile and gypsum plaster. All apartments have gas stoves and refrigerators; gas fired, forced warm-air heating units serve each six apartments. W. Kenneth Miller was the local associated architect, supervising construction.

T. P. Robinson Photo

WHAT KIND OF GROUP DESIGN?

POSSIBILITIES AND PREVENTIONS

By Arthur C. Holden, F.A.I.A.

WHAT kind of group design may, in the next few years, be possible as well as desirable? The question in this discussion hinges more on straight factors of planning and design than on finance economics. The answer, of course, involves consideration of what the public wants. Contact with the demands of public taste, in turn, reveals that the public on its part lacks sufficient information as to the range of possibilities, and the hindrances in the path of accomplishment.

It can be argued that the public in general looks with suspicion upon innovations; nevertheless, when homes are offered which combine economy, convenience and attractiveness, there is active public response, not much diminished by departures from the commonplace in group arrangement and design. Moreover, the public is asking more and more discerning questions about the respective advantages of buying and renting; and also whether housing, planned as a group, can be offered only on a rental basis.

The increasing demand for suburban rental apartments may in part be attributed to recent experience with planned war housing. In spite of shortcomings, many of these large scale housing projects have furnished a concrete demonstration of new horizons in residential communities. In a great many cases these projects have been accepted by the public as giving more convenience and attractiveness, in proportion to the money and risk involved, than houses and lots offered in undesigned rows, previously accepted as a minimum standard.

To some extent the impression prevails that such limited experience with the planned community as the public has enjoyed has been made possible through governmental subsidy. Accordingly, there is a great demand for more subsidies so that there can be more housing of these improved types, and more projects planned on the basis of the group. Moreover, it appears that legislatures and courts, in much part, are in agreement that governmental subsidies are justified both to aid our cities rid themselves of unfit obsolete habitations, and to aid in providing housing of a minimum standard of decency for families whose earnings are, through no essential fault of their own, below the level at which decent housing can be provided on a straight commercial basis. But present demands for subsidies go far beyond the limits originally intended. The question is asked "Why can't those who *can* afford to pay obtain homes that are planned on the group basis and which possess a reasonable degree of assurance to the amenities of community life?"

Granted that the progress made has given the general public a new hope for better living conditions, it is my belief that we have fallen far below what should have been possible even under the limitations of depression and war. Furthermore, unless there is broader understanding of the restraining factors, it is likely that, in the future, we may fail to make the gains that should be possible in group housing and community design.

The Architect: Specialist in Coordinating Specialists

Much of the credit for America's great industrial progress is due to specialization. There comes a point, however, where specialization begins to create new dangers of its own. The architect is especially aware of this, because a large part of his task as designer is to coordinate the work of specialists. He himself is a specialist at coordination. He has to have a broad knowledge, not only of how other specialists work, but of how far their provinces of practice will permit modification in the interest of objectives beyond each specialist's particular concern.

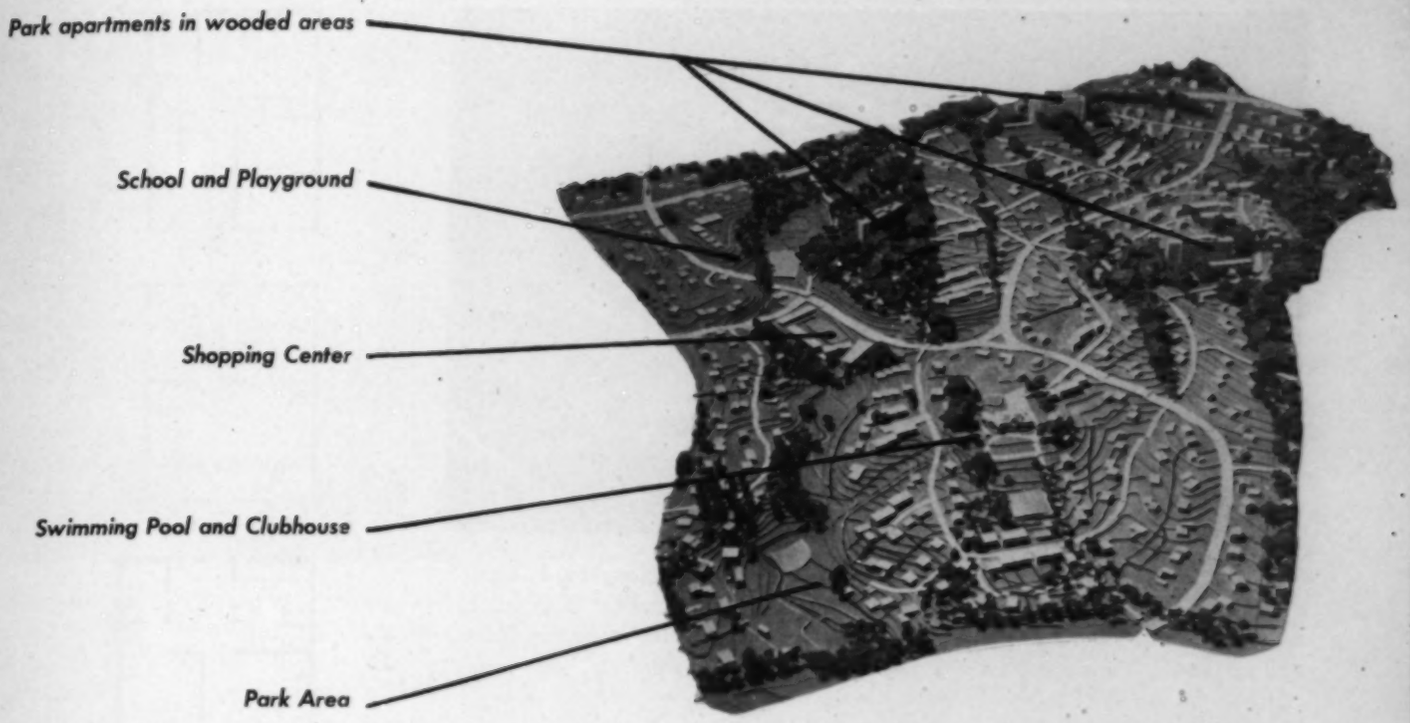
Let us make clear that in discussing "group housing" and deliberately avoiding the use of the term "apartment house," we assume that the state of public taste has advanced beyond acceptance of the tall city apartment, or even the standardized four-family house, both originally designed for a typical city lot and too frequently transplanted to a rural or suburban environment. Such buildings remain city apartments or flats even though specialists who create them dub them "Cottswold Manor," hoping thus to cash in on the publicity value of fake half-timbered gables cutting the roof line, or projecting from an otherwise inoffensive third or fourth story wall. Such incongruous city transplantations assume the transfer of an urban system of lot subdivision to country and suburbs, and the regularization of country roads into streets.

It is my contention that the character of the rural landscape can be maintained if houses are grouped appropriately, with a minimum semblance to arrangement in rows. This can be done by careful attention not only to the design of buildings but to the design and arrangement of the spaces between. We should consider the concentration of buildings in groups, and in no less degree strive for the concentration of open spaces. In the ideal we should aim at a skillful combination of dispersion and concentration.

How Did We Miss?

At this point it is pertinent, perhaps, to inquire why the design of our communities has fallen so far short of the ideal, in spite of the fact that the past 70 years have produced continuous improvements in the technique of building. Probably never before in history has such a great physical task been performed in such a short period of time as the astonishing amount of construction accomplished by the American people.

The rapid development of machine processes and advances in transportation have made new materials con-



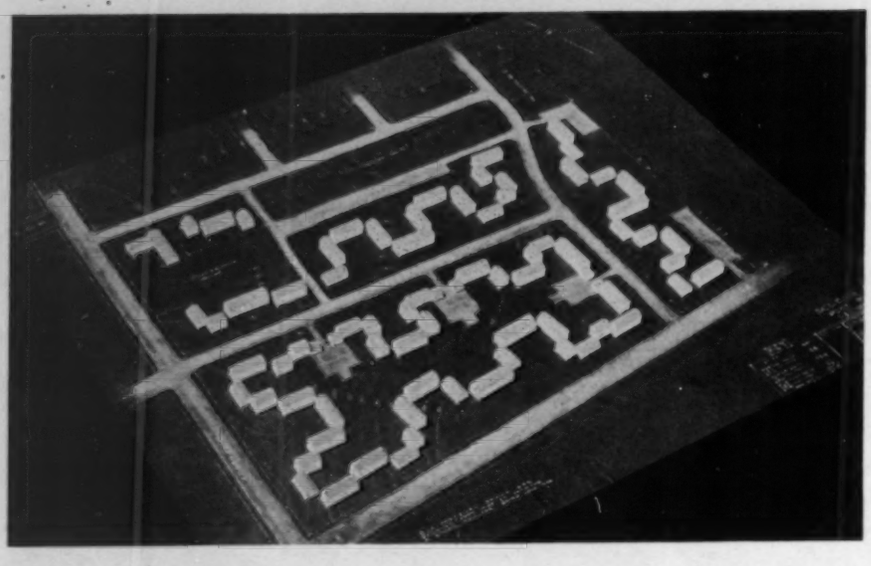
Model of Project for the Bannockburn Cooperators — Vernon DeMars, Architect. A most significant proposal for the development of a golf course site. The plan does not fit into zoning laws as written inasmuch as it calls for three widely separated tall apartments planned harmoniously with group-row and individual housing. The design attempts to make the most of natural features and to concentrate the buildings, leaving sufficient open area between to retain the natural assets of the landscape. Strangely enough, surrounding property owners have opposed the development, little realizing that a gridiron plat could be laid out and built up with banal individual family homes under present zoning laws, and that variation of types of buildings makes possible the preservation of open space

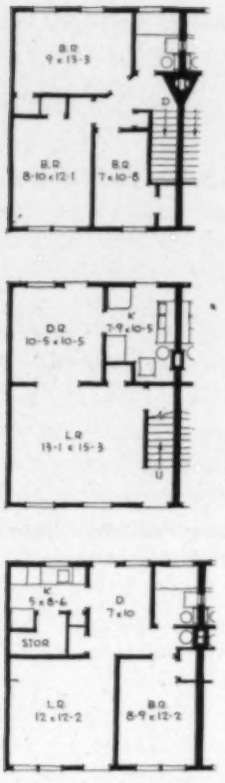
tinually available. But probably the greatest factor in increased productivity has been the specialization of labor and the subdivision of tasks. It is not necessary here to go into details of how the labor of creating materials has become increasingly separated from the labor of erection, or how separate sets of skilled craftsmen have developed to handle different types of materials. It is more important to stress the division of responsibility. The man who designs the building has been glad to have the contractor assume the responsibility for erection. The contractor who builds usually prefers to have someone else take over the responsibility for owning and maintaining. The major portion of the money required for construction is furnished by neither the builder nor the ultimate owner; it is loaned frequently through an agent to be gradually paid back in exchange for the use of shelter.

But in many respects this division of responsibility has had definitely nonprogressive effects, tending to create habits setting unfortunate limits upon design. For example, those who lend money want the limits of the owner's responsibility definitely fixed. The owner also wants boundaries established within which his authority will not be challenged. As a result of divided responsibilities, the limitations of a system of individual development have carried over into an era with a tremendous necessity and potential capacity for common planning.

Furthermore, we have set up regulations and enacted into law certain restrictive measures of original good intention, designed to protect the public against the abuses of special interests. Most of these restrictive measures presuppose an individual interest confined within certain specific boundaries, working against individual interests confined within adjacent plottages, as well as against the public interest. For example, many of our zoning laws are focussed upon restricting the building bulk on a single lot and, especially in suburban areas, upon maintaining certain minimum front, side, and rear yard dimensions. We appear to have been practically blind to the encouragement of procedure which is based upon the interdependability of property rights and advantages.

In 1946 it was my privilege to submit recommendations for zoning ordinance revisions to a city of over 40,000 population, where invasions by intensive type apartment houses were a cause for concern. The proposed code suggested a basic differentiation for individual lot developments from large scale plot developments which provided for the design of space between buildings. It appeared futile even to attempt to secure official backing for such a proposal. City officials didn't see how concert of action could be secured for the laying out of plot developments in the older parts of town where property was already cut up into lots, and they were quite frank in saying that they didn't want "apartment" groups to replace former large scale gentlemen's estates





Section 3, Jersey Victory Homes, Somerville, N. J.; Holden, McLaughlin & Associates, Architects. Model shows pairs of individual homes fitted together in groups of two and four, one story and two stories high. Rentals are expected to range from $60 to $80 per family. The entire project is composed of basic unit plans (at right) varied mainly in the number of bedrooms. Distinctiveness is obtained principally from variety in mass, placement of chimneys (each building having an individual heating unit) and location of entrance porches. Exteriors are white asbestos shingle with some brick veneer

in neighborhoods where individual lots were salable. It made no impression upon a planning board, composed of specialized department heads, to point out that, under the existing code, gentlemen's estates in the sparsely settled sections of the city could be cut up into individual lots, on each of which two family houses could be erected, ranged in rows with no more than the minimum required side yards between buildings.

In many cities the usual code requirements forbid the construction of more than one building on a single lot, and also forbid the construction of a building on a lot which does not abut a public street of a minimum width, generally set at 50 feet. These are outgrowths of such abuses as abounded in the city of Washington, when old stables or rear alleys were made over into Negro tenements without adequate sanitary provisions. Such legislation was also originally designed to protect the ignorant lot purchaser against being sold a lot to which no legal access was obtainable. Adequate access for fire apparatus has been another (and valid) reason given for regulations of this type, but there has been as yet little consideration for stultifying effects upon design.

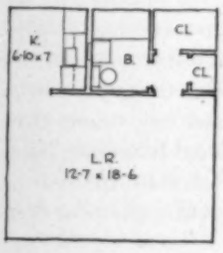
— And Further Hindrances

Group planning has encountered other positive difficulties. Accepted methods of design have not found a way to provide adequately for common recreation space, and to preserve those natural features of the landscape which furnish values enjoyable in common with use of the surrounding properties.

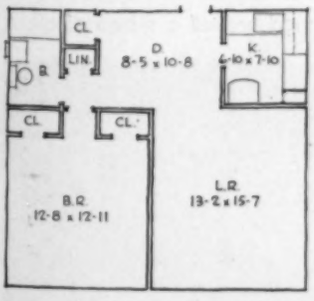
Let us take as an extreme example the "planning" of the interior of an average block laid out in lots for one-family homes. In the days of the buggy whip, it was advisable to place the stable at the rear of the lot as far from the house as possible. Today, with the horse practically a reminiscence, it is still not unusual to place the garage at the back of the lot, sometimes reached by a rear alley, sometimes by a driveway at the side of the house. Many municipalities have regulations requiring the garage, except when attached to the house, to be placed at least 60 feet back from the street. This means 25 to 60 feet of paved rear alley or side road per house. It also means, in general, that the interior of the block is cluttered up with miscellaneously placed garages.

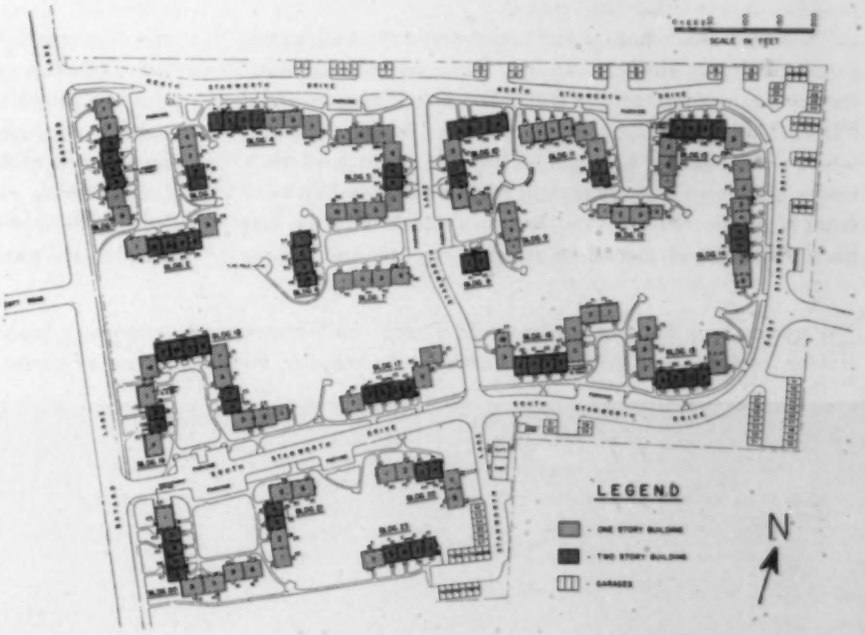
In laying out a new community even upon regularly spaced rectangular blocks, attractive central space, usable in common, could easily be provided were it possible to assure maintenance and protection of the common interest. Unfortunately, there are many hard and fast requirements for minimum lot sizes. Frequently these are backed up by the FHA. The "rules" do not recognize the desirability of a small size private yard, particularly when it abuts a large common open space. Furthermore lawyers usually advise against deed restrictions assigning the rear portion of a lot to common use as garden or recreation space to be enjoyed by all families of owners in the block. Certainly to assign space to a common interior garden is a practicable method for preserving the amenities of nature. It is a lag in our ideas of contract that prevents its use. Let us imagine an attractive little tree-bordered stream flowing through the center of a block. The value of such a feature is entirely dependent upon the success with which a plan for common enjoyment can be worked out. If design is to remain subject to the backwardness of the legal specialists, it is good policy to divert the stream into a culvert

Stanworth Project, Princeton, N. J., for the New York Life Insurance Co.; Holden, McLaughlin & Associates, Architects. 152 individual family units on a terrain where large specimen trees and a variation in grade of 50 ft. were factors in planning. The great depth of the 15-acre tract suggested a private loop road for access. The apartments are entered from the rear, the fronts in all cases facing on the garden from which automobile traffic is excluded. Dwellings are developed from unit plans, with the variations in grade and grouping furnishing the main esthetic elements of the design. Rents range from $60 to $125 per family. Located on one of the most important residential streets in Princeton with potential attractiveness beyond what is usually possible, these houses are designed with large rooms as a long-range investment, to be desirable after high costs have been largely amortized. Progress photo taken in January



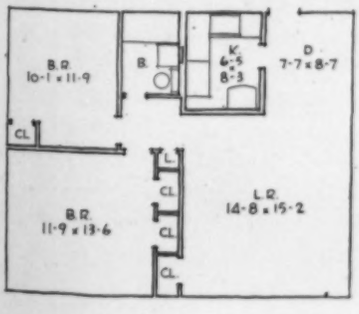
Above: no-bedroom unit

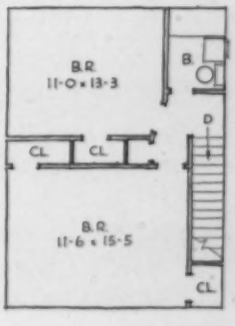


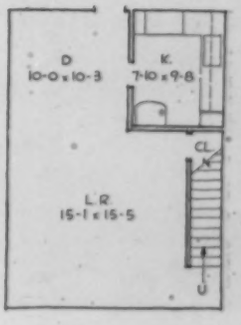


Above: one-bedroom unit. Below, left: two bedrooms, one story

Below, right: two bedrooms, two stories







and cover the irregularities of grade with fill, thus facilitating the eventual sale of independent parcels of real estate. All too frequently lots and houses are arranged principally with an eye to delivering a marketable property with a house that conforms to all requirements, unchallengeable through law or contract but starkly oblivious to the amenities of neighborly living.

In planning group housing the same type of habits and similar forms of specialized regulations militate against the improvement of design. Theoretically, the purpose of group housing is to secure the advantages of location and terrain for a larger number of families than could possibly enjoy such amenities in city, country or suburbs on the basis of single family homes.

But the belief is still widespread that all large scale group housing should be so designed that it may be split up and sold to small scale owners if the project proves unsuccessful. Many cities and towns require in their codes that every building shall be connected independently to a public sewer. This may be all very well for a city type apartment where families are piled up floor over floor, but where effort is being made to preserve a rural atmosphere and where the families and buildings are spread out horizontally, such a regulation usually adds unnecessarily to cost, and tends toward the destruction of natural charm because of the innumerable trenches intersecting tree roots.

There are other habits and requirements which make group planning difficult. Among these are certain mandatory preferences of the land planning division of the FHA. There has been insistence that facades should, wherever possible, be parallel to the street and that under no circumstances should rears be exposed to view from a public road. Even though a differentiation has been established between arterial streets and minor residential streets, there has been insistence, in which most municipalities join, that all public rights of way should be 50 feet in minimum width, and that added to this, there should be a minimum setback of 25 feet.

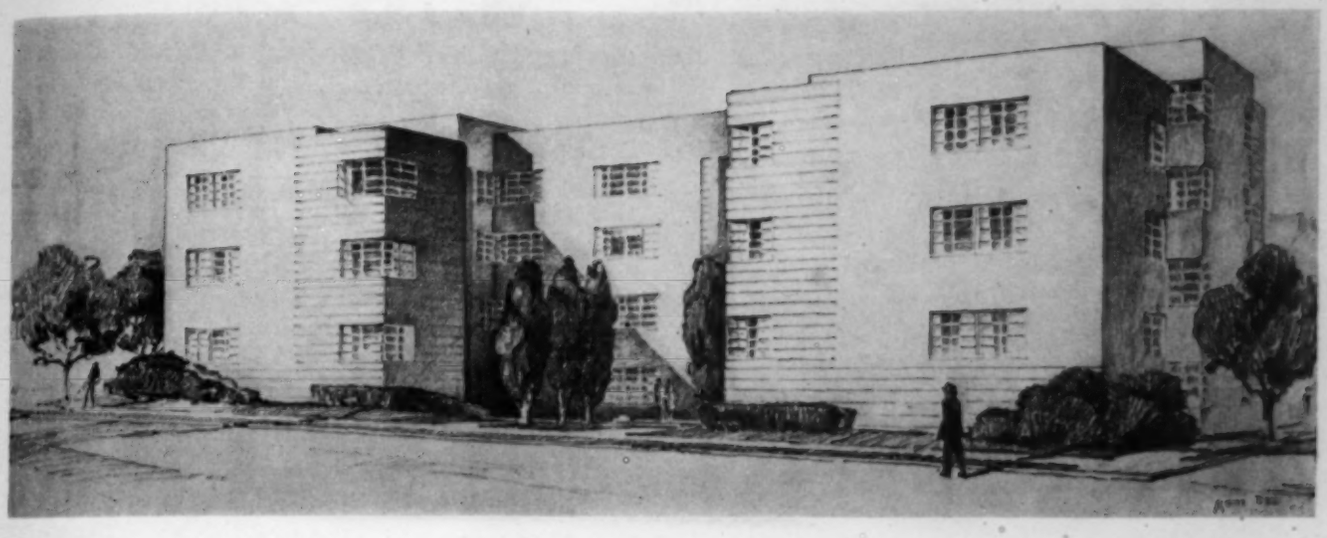
Lists of requirements such as these have been built up to suit the concerns of various specialists. The designer cannot help but chafe under them for they limit his power to make original use of the conditions that are presented to him. Most highway and fire departments support the insistence upon wide surface pavements, pointing out the dangers of blocking snow plows in winter, and fire apparatus. Then there is the ever-present consideration of heavy fuel delivery trucks and garbage collections. There is also the problem of how to take adequate measures for the ubiquitous automobile and still preserve the charm of unbroken greensward, trees and shrubs. The arrangement of a group housing project must satisfy these practical considerations of access and needed services, but there is much margin for give-away in meeting the no less essential requirements of gracious and happy living.

✣ ✣ ✣

Generalization regarding higher standards of group planning is likely to sound discouraging. A good plan is still one which makes the *most* out of opportunities presented. Even if all of the handicaps imposed by restrictions and specialized habits cannot at once be overcome, good group design should stimulate man, in the broadest possible sense, to acknowledge that more can be realized through common and shared enjoyment than through the obdurate definition of legal boundary lines, within which each individual may exercise his narrow choice, whether it be to exploit, desecrate, ignore or even to cultivate nature.

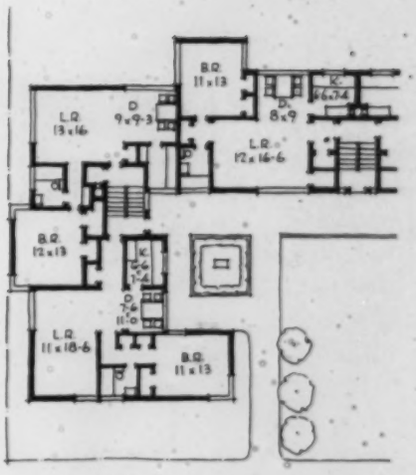
"Wartimes, new horizons": Monroe St. Project, built as temporary emergency housing for National Capital Housing Authority; Holden, McLaughlin & Associates, Architects. An irregular, well-wooded site of gentle gradient planned around a system of courts

Rodney McCay Morgan Photo

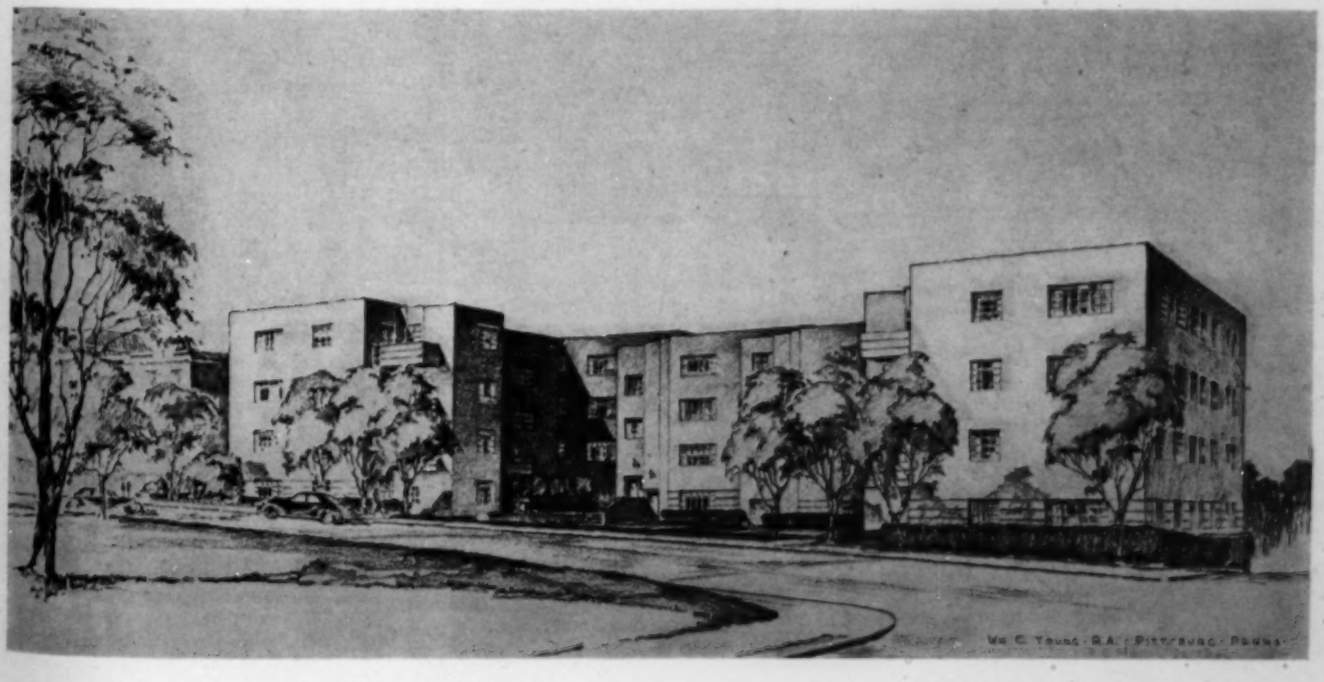


VARIED-LEVEL PLANS, PITTSBURGH

William C. Young, Architect

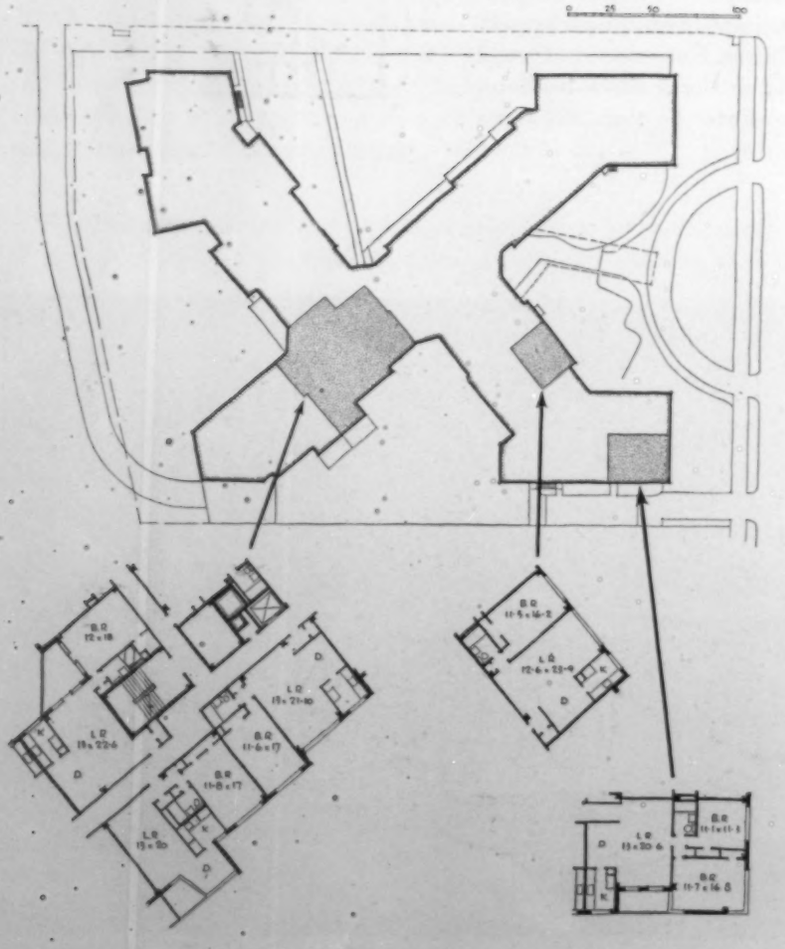


CONSTRUCTION on the building shown above, and in plan at right, is just about to start; the similar building shown below in rendering is just finished. Brief study of the plan will disclose varied levels between apartments — a distinctive feature of both projects, implementing garages in the basement since both are on reasonably level sites. Construction is steel joist and concrete floor; exteriors, brick with tile on cinder block back-up. Each building has an incinerator; concealed hot-water heating. $80 rents include utilities.



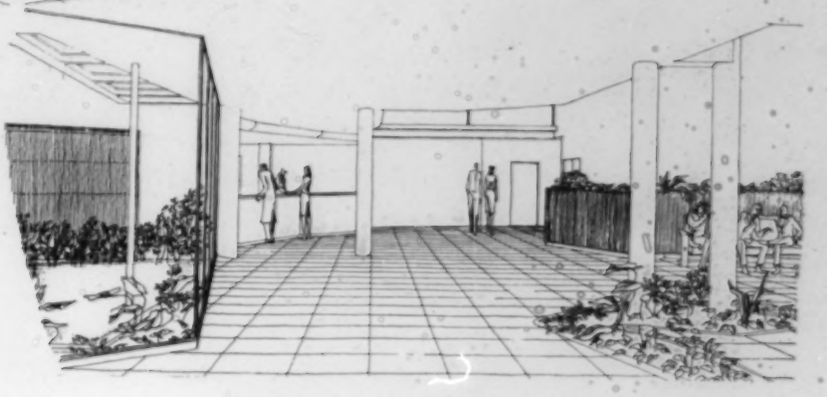
SPACIOUSNESS WITH OUTLOOK ON ROCK CREEK PARK

WASHINGTON, D. C.



Building rentals will probably be upwards of $35 per room, requiring fairly spacious layouts. A number of units have balconies and a few have two baths. Interior finishes will be painted plaster walls and ceiling; floors, wood block set in mastic; tile in baths; linoleum in kitchen. Large glass areas in dining spaces will be double-pane. A major feature of the building as a whole will be an integral two-level garage for 91 cars, access being directly from two boundary streets with differing levels, no ramps

Materials in lobby will be: floor and base, terrazzo; walls of plaster, rubble stone and plywood. Large glass areas and copious planting are calculated to arouse feelings in key with the general theme of spaciousness and broad natural outlook



Berla & Abel

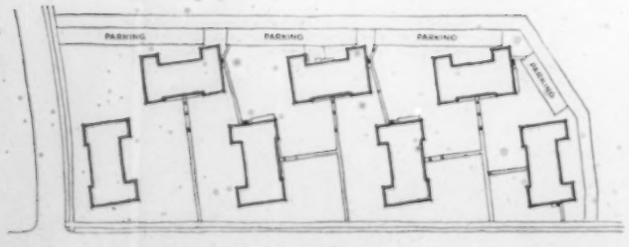
Architects

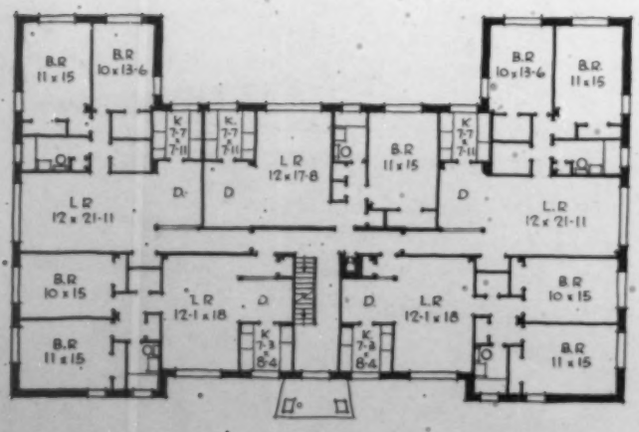
THE rendering across page, top, shows the building's southern exposure, overlooking Rock Creek Park valley. Designed to take advantage of maximum height permitted under zoning laws, the building's ground coverage, at typical floor level, is about 40 per cent of the plot. Construction is fire-resistant throughout, with reinforced concrete skeleton frame. Floor slabs are concrete with tile fillers. Exterior walls are to be buff face brick, with 8-in. cinder block back-up; interior, wood furring and plaster on gypsum lath. Heating system will be hot water radiant. Entire building will be mechanically ventilated, with air pumped into corridors, through vertical ducts (see top sketch), from basement fans. Air will enter apartments through door louvers.

GARDEN TYPE GROUP IN CAPITOL CITY

VALLEY AVENUE, WASHINGTON, D. C.

Berla & Abel, Architects





THE garden apartment type of building," the architects write, "and division of the project into seven small buildings resulted from financing considerations and a predilection on the part of the owner for this sort of arrangement. We personally believe that under the given circumstances, a single large multistory building on the site would have been about as economical to build and operate. Moreover, providing the same number of apartment units, it might very possibly have permitted better tenant outlook and landscaping. Under present local building conditions, construction costs of this garden type are about the same per unit as would be those of an eight-story building on the same site."

Local building codes required fire-resistive construction throughout; concrete frame was chosen as most economical for this region. Interior partitions are gypsum block, plastered. Door bucks and frames are steel. Windows are stock light-weight steel casements, with steel interior jambs and stools. Exterior walls are red brick with limestone trim.

All seven buildings will be heated by a main plant, centrally located in one of the basements.

STUDENT-FACULTY UNITS

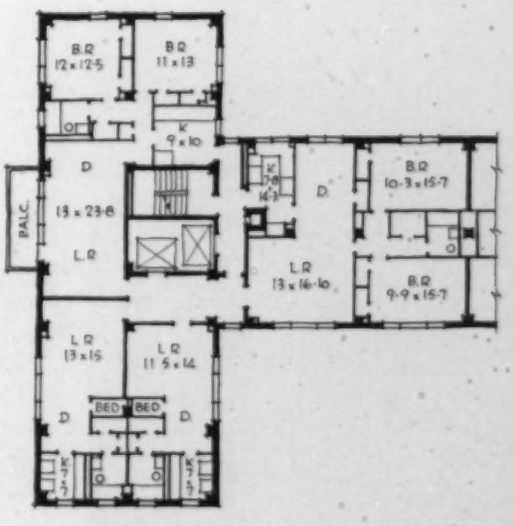
GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA

Burge & Stevens and Associates, Architects

REQUIREMENTS here were to design apartment units for the use of students and faculty members. They were needed in a hurry; at the same time, the school is in the midst of a long-term expansion program, requiring that the building be a durable permanent structure. Another factor: the present veteran's schooling program stipulates that rents be within reasonable range. (Financing of the building is being accomplished through a self-liquidating bond issue.) Basis of the design, therefore, was permanency and few luxuries, using materials capable of absorbing considerable abuse with a minimum of maintenance.

Footings, floor and roof framing are reinforced concrete. Exterior walls are common brick facing with hollow clay tile back-up. Walls and ceilings are finished with gypsum plaster. Floors are asphalt tile. Windows are aluminum; door frames, steel; doors, flush wood within apartments, fire-resistive in public corridors.

Half of the building is heated by conventional forced hot water; the other half by a floor panel radiant system. This was done purposefully for making comparative studies. Steam is provided from a central plant.



BALCONY UNITS

NEW YORK CITY

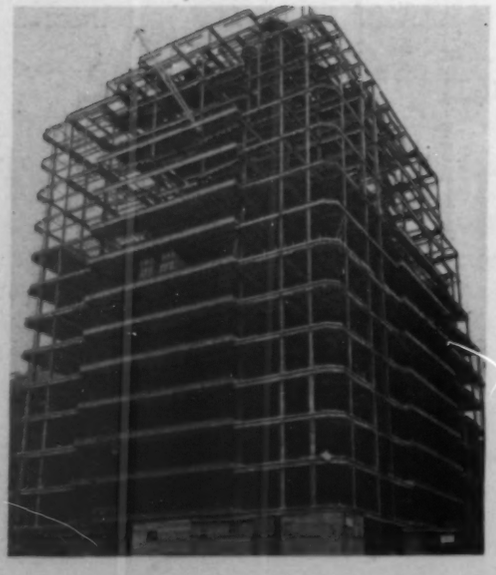
Sylvan Bien, Architect

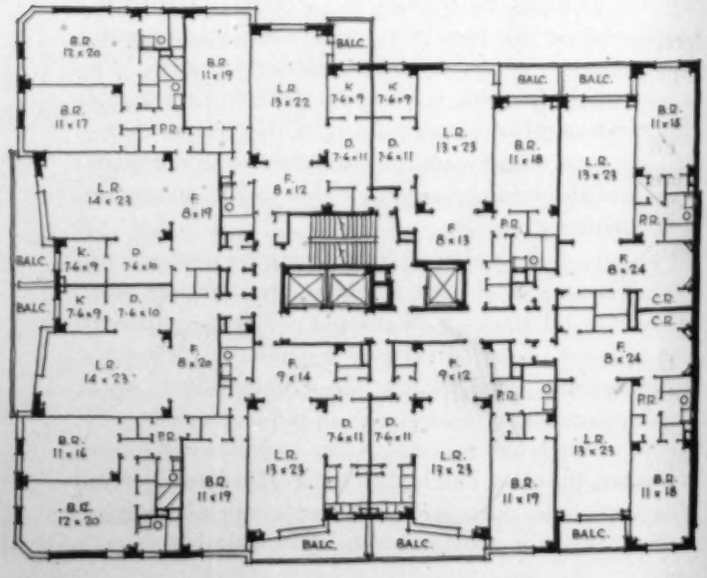
74TH ST. AND MADISON AVE.

SUNLIGHT and air on all faces, practically guaranteed for the future, were the basis of this all-out balcony endeavor. Streets are the margin of guarantee on the northern and eastern exposures. Immediately to the west is a low, permanent private residence; and a low building to the south is owned by the apartment proprietor.

The architect points out other considerations directed toward the type of tenant "who appreciates the finest in apartment living": three high speed elevators instead of two, as in comparable buildings; radio outlets in each unit, with "music by Musak"; conduits for television; interceptor telephone service for each apartment; a restaurant; maid and houseman service. Individual deep freeze lockers will be provided; kitchens and bathrooms without windows will be mechanically ventilated. All balconies can be enclosed and heated during winter.

Construction is steel columns and beams, reinforced-concrete cinder arches.



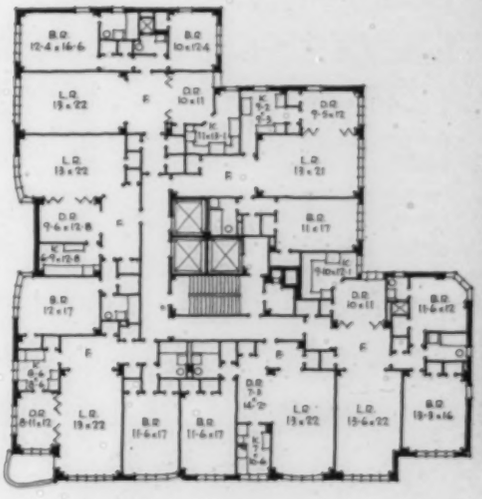


PARK AVENUE APARTMENTS, NEW YORK

ONE COMPACT, ONE LUXURIOUS

George Fred Pelham, Architect

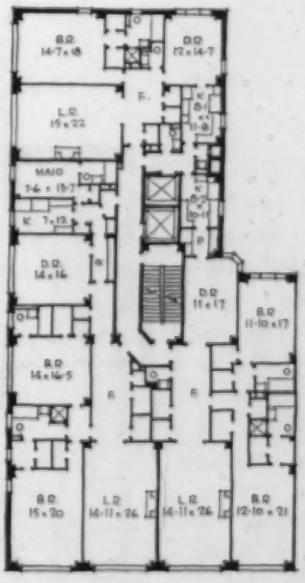
36TH ST. AND PARK



COMMENTING on problems of urban apartment design in general, the architect writes: "Zoning restrictions and the necessity of utilizing every foot of space sometimes result in unusual conditions on uppermost floors. The bulk and shape of the general mass often lack symmetry; fenestration, parapet walls heights, etc. must be judged from the viewpoint of the occupant, rather than the observer. . . . In a certain location, it may be legally possible to introduce a balcony, possibly detrimental to the facade but producing additional owner revenue. . . . In order to avoid costly off-sets and furring, columns, plumbing stacks and vent ducts must be carried straight up wherever possible. Consequently each floor plan must be studied separately and then restudied in the light of conditions above and below."

This location is handy to midtown office buildings, thus the compact plan for appeal to business couples with possibly one child. Most eating and entertaining will be done off premises; all facilities are planned for minimum housework.

70TH ST. AND PARK



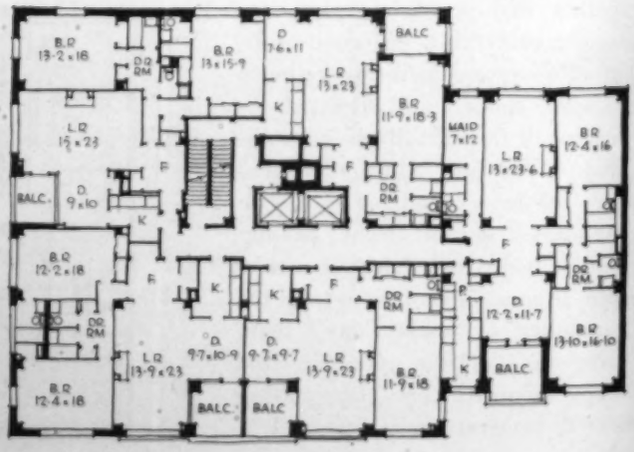
THIS strictly residential neighborhood abounding in big incomes, together with a narrow plot, imposed considerably different problems. Rooms and facilities are more generous, though still directed toward small families. Baths were located to obviate additional lavatories off foyers and, at the same time, keep guests from passing through bedrooms. Lack of maids' rooms in some units derives from the probability of much "day" help. Narrowness of the plot hindered compact "utility core." Long foyers serve to integrate units.

TERRACE APARTMENT IN UPTOWN NEW YORK

Leonard Schultze & Associates, Architects

THIS building, well-along in construction at 87th St. and Madison Avenue, advances the balcony motif to a point where closest definition might be: a *hanging* garden apartment. Each unit on the upper floors, with a few exceptions, has a private porch or terrace upon which extensive planting will be encouraged. The first floor will contain stores, in addition to the superintendent's quarters and a large entrance hall in marble.

Construction is steel frame, with concrete floor slabs encasing hot-water radiant coils. Basement, in addition to containing heating plant, will provide tenants' laundry, storage rooms and incinerator. Exterior has granite base and limestone trim, with gray face brick.



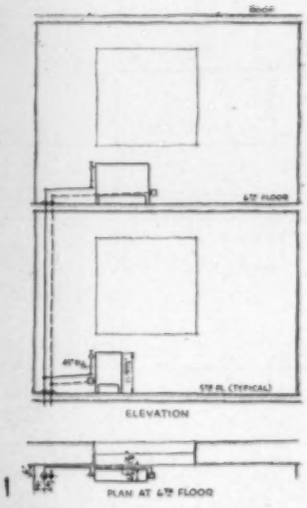
COMPARATIVE COSTS IN APARTMENT HEATING

WHEN New York City Housing Authority was looking for the most economical heating system for its Brownsville Houses, an unusually detailed study of various heating schemes and arrangements for a typical multi-story apartment was made by Meyer, Strong, and Jones, Inc., Consulting Engineers.

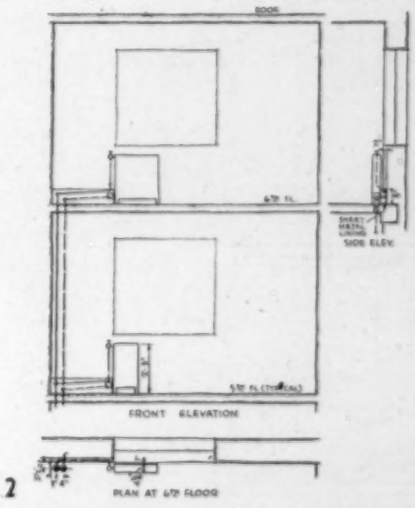
While this study was made in 1943, relative aspects of the cost comparison (see table on page 109) should still apply. To keep costs comparative, prices have been translated into an index with 100 as a base figure for the typical New York City Housing installation (No. 1, below).

The study was made purely on the basis of installation costs (disregarding everything common to all schemes, such as boiler rooms and underground distribution systems), and not upon other considerations of convenience, performance, or operating costs.

Included in this analysis are various riser and connection arrangements for the conventional 2-pipe vacuum system, 1-pipe steam system, and the "Metro" downfeed riser system. To make the study as complete as possible, comparative costs were also figured for unit-heater and panel-heating systems for the same apartment.



1



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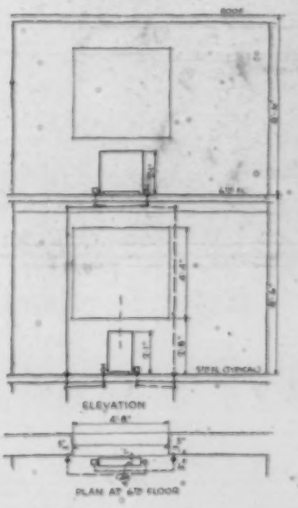

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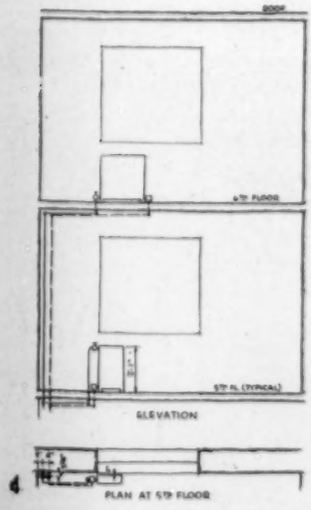

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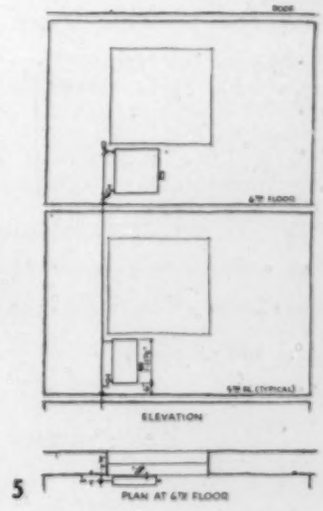


5

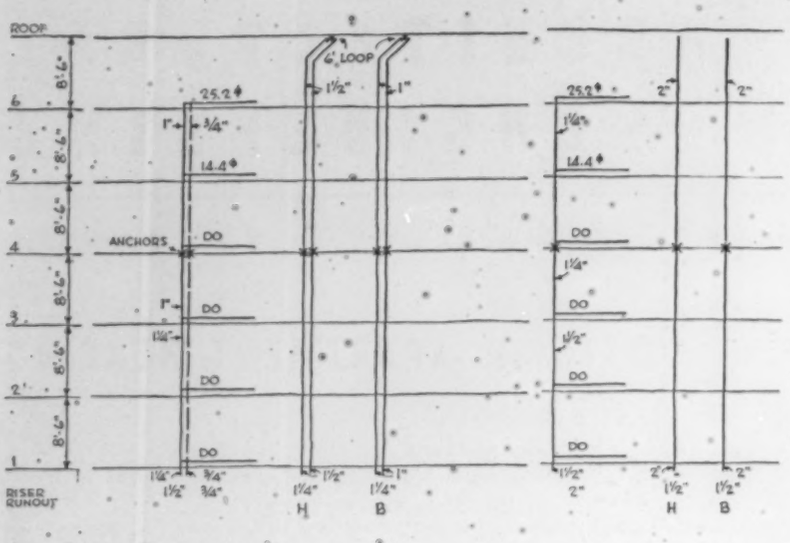
1 (Typical New York City Housing) 2-pipe vacuum. Risers in room corners. Radiator connections at floor

2 2-pipe vacuum. Risers in room corners. Radiator connections chased at floor

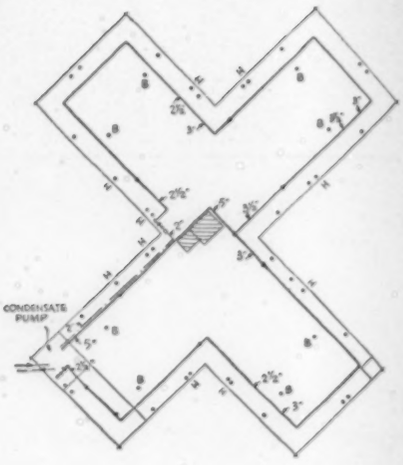
3 2-pipe vacuum. Risers at windows. Radiator connections at ceiling

4 2-pipe vacuum. Risers in room corners. Radiator connections at ceiling

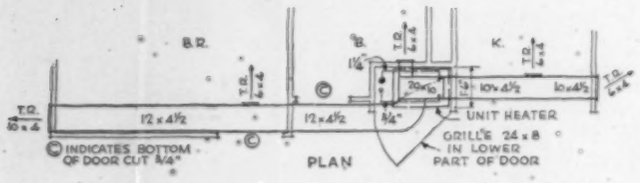
5 1-pipe steam. Risers at windows. Radiator connections at floor

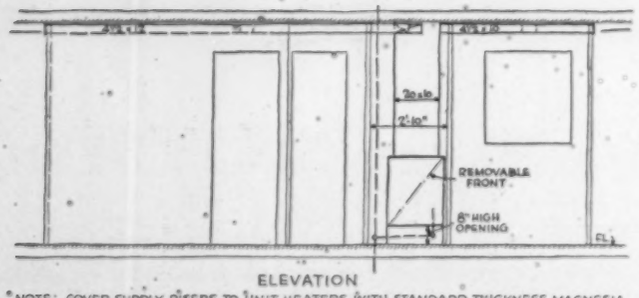


Left: Riser diagram for **1** *(2-pipe vacuum). Risers for* **2**, **3**, *and* **4** *are similar. Right: Riser diagram for* **5** *(1-pipe steam)*

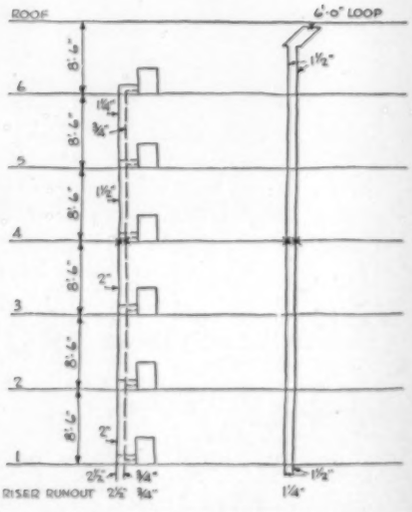


Basement plan of entire building, showing piping for **5** *(1-pipe steam). H = risers for hall or kitchen, B = bathroom risers*





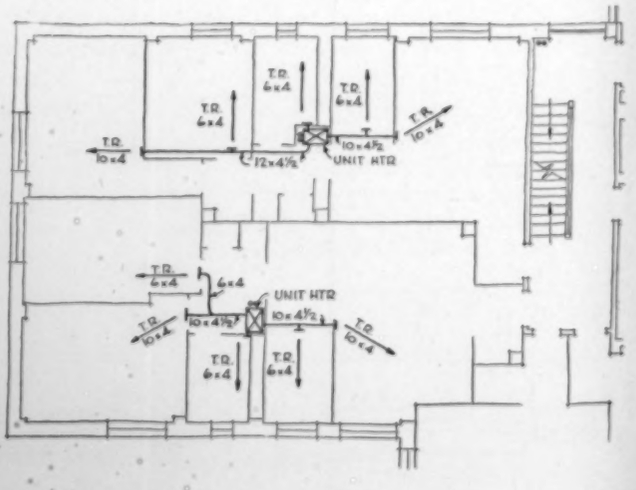
*NOTE: COVER SUPPLY RISERS TO UNIT HEATERS WITH STANDARD THICKNESS MAGNESIA. PROVIDE AQUASTAT AT EACH UNIT HEATER TO STOP FAN WHEN COIL COOLS

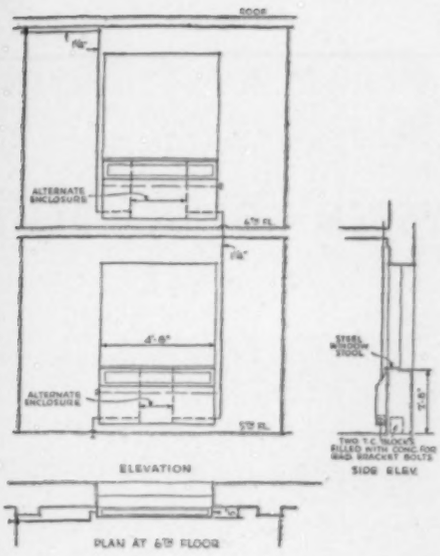


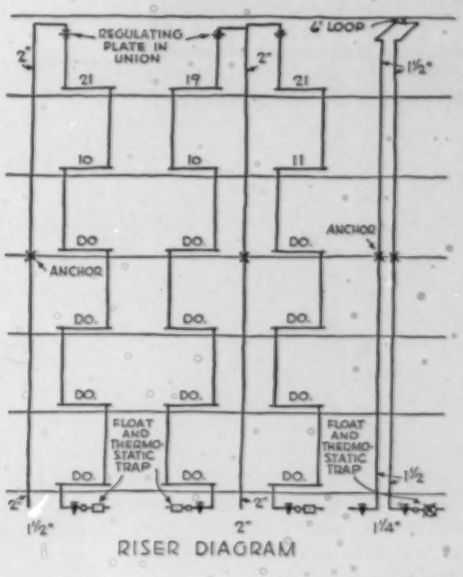
6 *Above: Unit heater. Heated air from steam-to-air heat exchanger is forced through ducts to rooms in the apartment*

Above, right: Riser diagram for unit heaters

Right: Unit heater arrangement for typical apartment wing

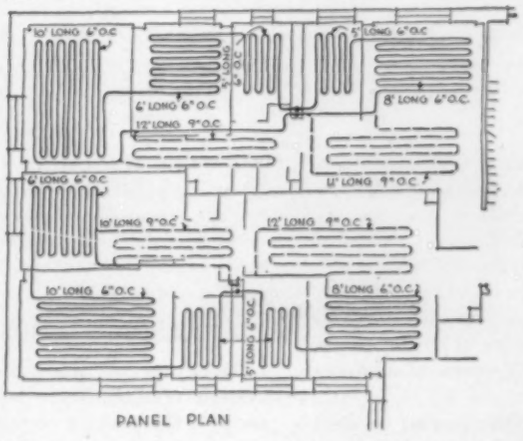


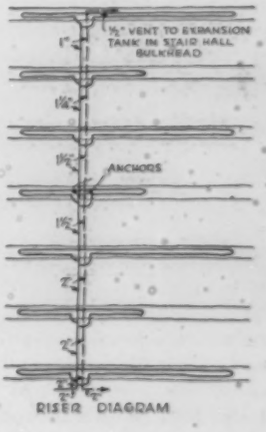




7 *Downfeed through convectors. This is the so-called "Metro"* system wherein sub-atmospheric steam is fed downward and through the convectors, as shown in the riser diagram. This eliminates cross connections in rooms, also individual collector traps since the riser is trapped in the basement. The convector consists of a finned and enclosed section of the downfeed riser, and cannot be shut off, though in the original system a damper was included in the convector enclosure to regulate the volume of air circulating through it*

* *The original "Metro" system was developed for Parkchester Apartments, Bronx, N. Y., and patented by Edward E. Ashley, Consulting Engineer.*





8 *Panel heating plan. Coils shown by solid lines occur in slabs of floors 1 through 6 and the roof; those shown by broken lines, in floors 1, 3, and 5 and the roof. All coils and branches are ¾ in.; welded and buried in concrete. Right: Riser diagram for panel heating*

COMPARATIVE HEATING COSTS FOR A TYPICAL 4½-ROOM APARTMENT

Prices, based on 1943 material and labor costs, are comparative only and include nothing common to all schemes, such as boiler room, and underground distribution. Control systems included are similar except for panel heating.

Cost Index	Scheme No.	Type
100.0	1	(Typical New York City Housing) 2-pipe vacuum. Risers in room corners. Radiator connections at floor
104.9	2	2-pipe vacuum. Risers in room corners. Radiator connections chased at floor
105.7	3	2-pipe vacuum. Risers at windows. Radiator connections at ceiling
106.6	4	2-pipe vacuum. Risers in room corners. Radiator connections at ceiling
91.4	5	1-pipe steam. Risers at windows. Radiator connections at floor
242.4	6	Unit heater
101.4	7	Downfeed through convectors
272.6*	8	Panel heating

* ***Panel heating licencee's estimate: 216.5***

PRECAST FLOOR SYSTEM FOR APARTMENTS

A FLOOR system of precast concrete slabs has been adapted to one of America's largest garden-type apartment developments, Parkway Village*, in Queens, N. Y., with a promise of considerable savings in construction costs. This is a 110-building project which will house United Nations' personnel in 2- and 3-story units, providing 675 garden-type apartments.

The original plan was to use wood floor members since the buildings do not exceed three stories in height and are of residential character. Three factors changed this plan: (1) the present shortage of wood; (2) a desire for fire-resistant construction; and (3) the speed with which precast floor systems had been used in large Navy installations during the war.

Preliminary studies were then redesigned to conform to convenient floor slab modules. Due to the extent of the project, there are 12 basic sizes of slabs, divided into types required by the location of sleeves for mechanical trades or the location of bearing wall at right or left. The accompanying apartment plan shows how a typical floor is subdivided into slab areas.

Each floor of a typical building unit is made up of 24 precast slabs, varying in size from 7 by 10 ft. to 16 by 16 ft., averaging one slab for each room or half of a room. Their thickness is 1½ in. with tapered ribs, 6 in. deep and 2½ in. wide at the bottom. Reinforcement is provided by welded wire mesh in the slab and one rod in each rib; 6,800 slabs in all will be required for the project.

The slabs rest on cinder block walls and interior Lally columns, and are secured to them by anchor bolts. Careful precasting makes it possible to use the underside of the slabs as an exposed ceiling, after cement finishing where needed and painting. Floors are of hardwood set in mastic, without sleepers or subflooring.

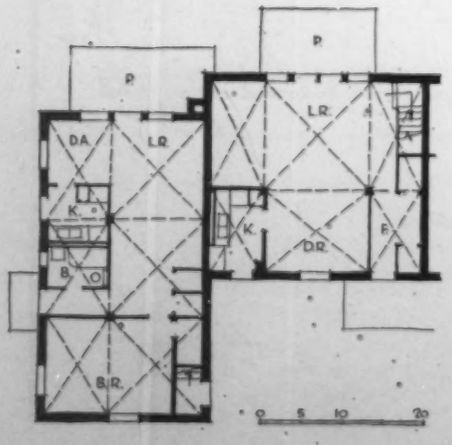
Advantages of this precast system over poured-in-place floors are: (1) economy; (2) standardized procedure, which employs 115 concrete molds in place of thousands of temporary wood ones; (3) faster construction, since floors can be set in place quickly without obstructing the floor below with shoring for wood forms; (4) lighter floors as compared with the usual poured-in-place slab; and (5) savings in plastering and finishing due to high-quality surface appearance of the precast slab.

Basement view of precast floor slabs. The slabs on upper floors are also left as exposed ceilings, after painting. Joints are pointed and marginal ribs set flush with walls

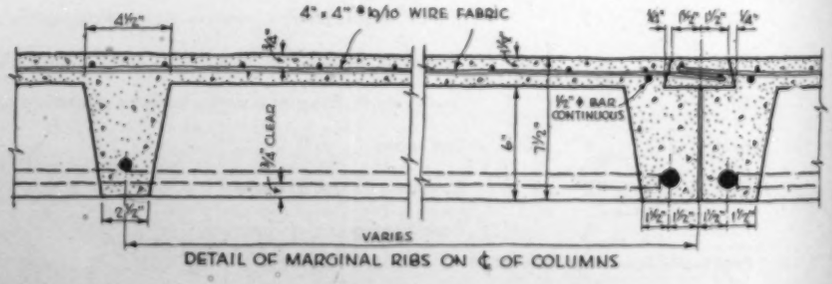
COST CONSIDERATIONS

An actual cost analysis of the precast system is difficult to make. On this project, the precast system has only recently moved from the pioneering stage into standardized procedure. Once the system becomes routine, however, the following approximate cost is estimated: 60¢ per sq. ft. of precast floor, which, according to preliminary cost estimates,

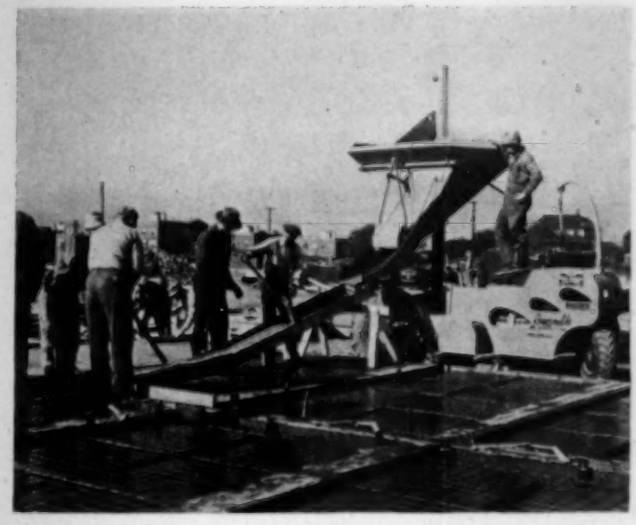
*Being erected by Savings Banks Trust Co.; Leonard Schultze Associates, Architects; Capt. E. H. Praeger, Madigan-Hyland, Consulting Engineers; George A. Fuller Co., General Contractors; Vacuum Concrete, Inc., consultants on the vacuum concrete features.

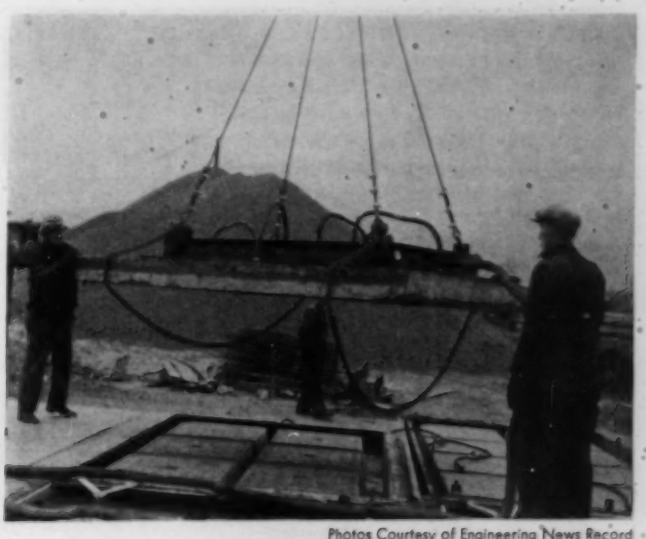


Left: Apartment plans show how their floor areas are subdivided by precast slabs, which rest on cinder block walls and interior Lally columns. Hardwood floors are set in mastic, without sleepers or subflooring. Below: cross-section of one of the slab types



Steps in casting the concrete mold. Left: Precast hollow squares are placed within metal edge forms and blocked above the ground. Abutting flanges of the squares will form the mold for the ribs of the slab. Compressed-air risers are set in the center of each square, and concrete poured flush with their cover plates. Right: Completed mold after surface has been finished and reinforcement set in place





Photos Courtesy of Engineering News Record

Steps in casting the slab. Left: High-early-strength concrete from the central mix plant is poured in the prepared molds. Right: After the slab has been cured it is pulled by a vacuum lift. Initial separation is started by a blast of compressed air from the risers

is about 50 per cent below that of poured-in-place floors.

The 60¢ per sq. ft. estimate for precast floors is comprised of the following:

$0.02 for molds.
0.38 for concrete, labor, materials, and equipment.
0.12 for erection.
0.08 for vacuumatic curing.

MOLD PREPARATION AND SLAB CASTING

The heart of the system is the casting yard covering 12,000 sq. ft. near the site, and employing 115 molds. The first step in making the mold face is to cast, in metal forms, a number of concrete hollow squares, averaging 3 ft. in outside dimensions, with outer edges tapered and flanged. Groups of these squares, after stripping, are laid within steel edge forms of the finished slab dimension, in such a way that their flanges butt together and form the mold for the ribs.

Compressed air pipes are built into the form with vertical risers, topped by loose plug plates, at the center of each square. Their purpose is to provide a blast of compressed air that will help separate the slab from the mold. Metal cores are also placed at this time if required for openings in the finished slab, for piping or other services.

Concrete is poured into the centers of the squares which have been blocked a few inches above the ground so that the concrete will spread beneath and form a heavy base, and leveled so that its face is flush with the plug plate covering the compressed air risers.

After the mold so formed has been cured and given a smooth surface finish, it is painted with lacquer as a seal and brushed with a mixture of form oil and castor oil. A prefabricated mat of welded wire and rod reinforcement for the floor slab is laid in place, and concrete from the central mix plant poured. The concrete is brought to the mold in motor-driven "buggymobiles" that have a capacity of 1 cu. yd.

High-early-strength concrete and the application of vacuum pads for approximately 10 minutes permit the slab to be drawn on the day after pouring. It is raised from the mold by means of a vacuum lift after compressed air starts the initial separation.

The strength of the slab was indicated by a load test which required 255 lb. per sq. ft. to cause 0.311 in. deflection (1/360th of the span): 345 lb. per sq. ft., which is more than four times the expected total load, produced 0.71 in. deflection, but not actual failure.

WHY HANDICAP WELDING?

By James F. Lincoln*

ANYONE who follows the standards and codes covering arc welding electrodes and techniques cannot help but wonder at the severe tests and restrictions they impose. Here is a process that has been used in countless cases for over a generation, the record of which has been almost perfect; yet it is criticized and limited more than any comparable process in all mechanical history. This criticism is not because of structural failure. It is entirely in the region of theory covering conditions which do not occur in commercial application.

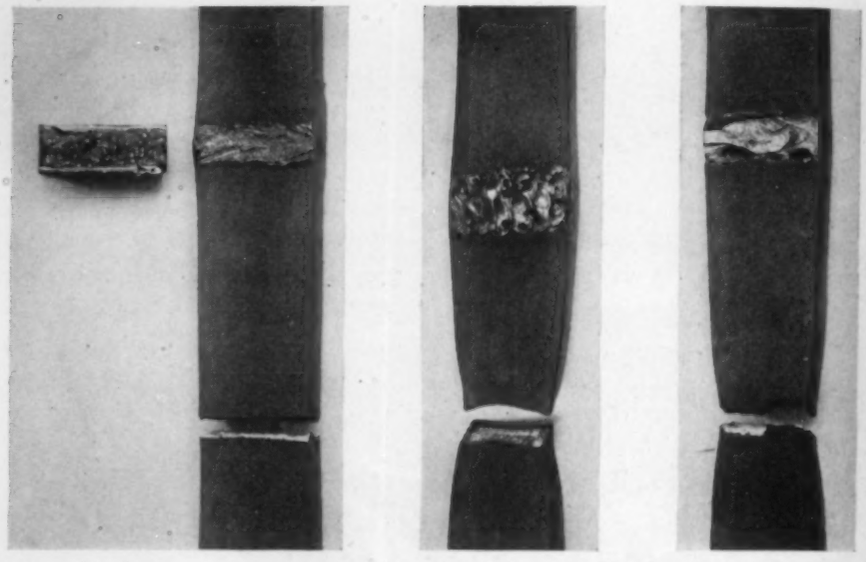
There is one controlling factor concerning welded structures which appears to be disregarded. In the case of mild steel, which embraces more than 95 per cent of all welding, the welded joint is very much stronger and has a very much higher elastic limit than the plates joined.

Since that is true, the weld will not be used in actual service at anywhere near its point of failure. As a matter of fact, if in actual application the welded structure were loaded to a point that even approached the elastic limit of the welded joint or the metal immediately adjacent to the weld, the structure itself would be useless.

Perhaps we can illustrate the matter this way. Suppose there were a chain of 100 links, each link being made of 1-in. round, 99 of these links being made of mild steel and one link made of high-strength alloy steel, corresponding to the weld metal. Then suppose the chain were tested. Would anyone worry about the chain breaking in the one alloy link? He would not, because every one of the other 99 links would break long before the alloy steel link was even partially loaded.

The same is true of a welded structure. The weld itself and the metal immediately adjacent to it have an elastic limit 50 per cent above that of the parent metal and an ultimate tensile strength at least 20 per cent greater. If the strength of the rest of the structure is sufficient, certainly the weld must be. As a matter of fact, structures are designed with a factor of safety so that their maximum load is less than one half the elastic limit of the parent metal. Obviously, it would not be stressed to more than one-third of the elastic limit of the weld metal and the plate immediately adjacent to it.

*President, The Lincoln Electric Company, Cleveland, Ohio



Tensile test specimens show that even highly imperfect welds are stronger than the base metal. Left: Welded joint with abnormally large amount of internal porosity, as shown by nick break view. Point of failure was in the plate, not the weld, at 62,500 lb. per sq. in. Center: welded joint with abundant surface porosity. Plate failed at 59,100 lb. per sq. in. Right: weld with abnormal amount of undercutting. Plate failed at 59,400 lb. per sq. in.

Because of this program of criticism, great and unnecessary expense is put upon the manufacturer using welding. This, of course, is paid by the buyer in higher prices, with no possible return accruing to him. There are countless illustrative cases that could be cited. The following are examples: If there is surface porosity, even so much as a little hole on the surface, the weld is rejected. If that same porosity were below the weld surface where it could not be seen, the manufacturer must cut it out carefully and *re-weld the joint*, at great expense, after finding it with expensive x-ray. Again, if there occurs slight undercutting at the edge of the weld, the weld must be rewelded and the slight undercut eliminated.

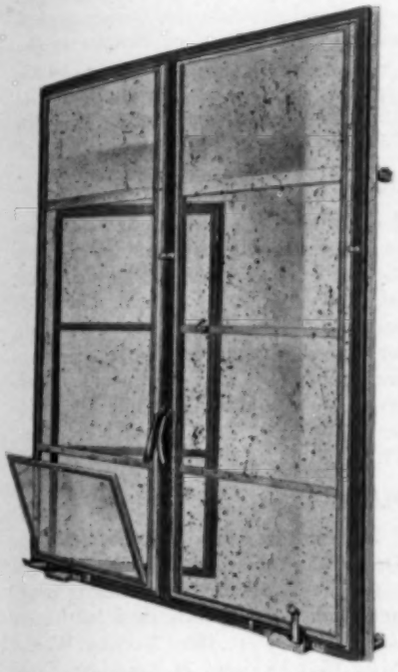
The accompanying photographs are shown as proof of the efficiency of welded seams, even with so-called defects. Here is porosity carried to an extreme, yet the joint is stronger than the plate. Here is great undercut and even laps in the weld. Still the plate breaks first in tension. Not only would such joints be rejected, but if they had 1 per cent of these so-called defects the structure itself would be rejected. The question naturally is asked, "Why?"

It would appear obvious that there could not possibly be a riveted joint which could join any of these pieces of steel together in any way which would not ultimately break in tension, yet there is no testing of the rivets, no x-ray of the voids in their joint, no elimination of the undercut, while we know in every riveted joint that all of these defects are present not only occasionally, but in every case. Again we ask the obvious question, "Why accept such defects in a riveted joint and reject them in arc welding with its greater strength, ductibility and soundness?"

There is no doubt that if the restrictions that add nothing whatsoever to the efficiency of any welded joint were removed, the cost of welding could be reduced by as much as 90 per cent in many cases, with no decrease in safety.

It is my belief that architects and engineers should do everything in their power to see that codes are changed to remove the restrictions on welding which appear to be obviously unreasonable and discriminatory.

PRODUCTS for Better Building



Storm window for metal casement windows

ALUMINUM STORM WINDOWS

For metal casement windows, the *Ceco* aluminum-frame storm window provides complete inside coverage. These storm windows allow full operation of the casement ventilators, and, if desired, a controlled ventilator may be included in the storm panel. A rubber weathering seal around the perimeter of the storm sash frame is furnished. Panels are light and easily stored for the summer in space used for winter storage of metal frame screens. Ceco Steel Products Corp., 5701 West 26th St., Chicago 50, Ill.

HEATING CONTROL

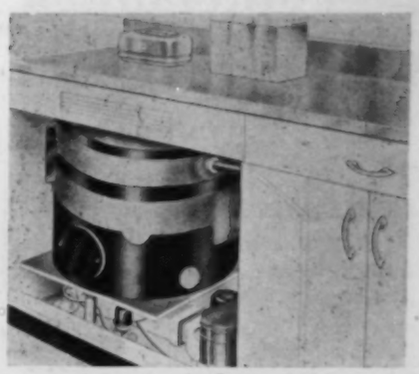
The *Compensated Limit Control* for domestic heating plants is designed to provide control over the approximate amount of heat input in the house by anticipating changes in heat demand and permitting more precise control from the room thermostat. It can be used with oil, gas, or stoker fired warm air heating systems. Designated by Type No. T 418, the control consists primarily of a mercury switch instrument case and two capillary tubes with bulbs; one, 20 ft. long, for mounting outside the house and the other, 10 ft. long, to be installed in the bonnet or warm air supply of the furnace. In use, the control goes into operation as outside temperatures fall below 65° F. At this point the temperature in the furnace is raised according to a predetermined schedule. While designed for use in conjunction with the Moduflow system of automatic temperature control, it can be used also in some types of panel heating and with the conventional "on-off" thermostat method. In the Moduflow method, the thermostat itself controls volume dampers which deliver the amount of heated air to the living space. Minneapolis-Honeywell Regulator Co., 2707 Fourth Ave., South, Minneapolis 8, Minn.

ELECTRIC PANEL HEATING

Electric heating cable, developed by L. N. Roberson Co., is being used in panel systems to heat a large number of houses entirely by electricity in the Seattle area, where utility rates are comparatively low. This unique form of radiant heating employs special *Heatsum* cable, embedded in wall or ceiling plaster, and connected through junction boxes to an electrical source. Cost of heating cable and thermostats reportedly averages 3.25¢ per cu. ft. of house; and for the completed job installed, 7.5¢ per cu. ft. Operating costs for the Seattle area, where electricity rates average 1¢ per KWH, are quoted as on par with No. 1 oil at 7¢ a gal. Electricity bills for 13 panel-heated houses showed average power consumption of 2.36 KW per cu. ft. for a year. These were total bills, including lights, range, and water heater as well as panel heating. No difficulties are reported in obtaining insurance; Underwriters Laboratories is said to have termed residences so heated insurable. L. N. Roberson Co., Dept. AR, 1539 E. 103 St., Seattle 55, Wash.

WATERPROOFING

Celadri waterproofing compound comes in colors for decorating as well as sealing brick, stone, stucco and all porous masonry surfaces. The manufacturer claims that Celadri gives water tightness and hardens to a rock-like consistency that will last the life of any surface except floors. It is recommended for application either inside or outside, and above or below ground. Drying time is 6 to 24 hr. Colors are white, buff, light gray, dark gray, blue, green and terra cotta. Pastel shades are obtained by mixing colors with white. Celadri Corp., 644 Willis Ave., Williston Park, N. Y.



A small house can be heated by this cabinet-size boiler-burner hot-water unit

BOILER-BURNER UNIT

An unusually compact boiler-burner unit has been developed to furnish hot-water radiation for the small house as well as a year-'round supply of domestic hot water. It is small enough to fit into a standard kitchen cabinet, with hot-water storage tank above, or comes equipped with a steel jacket for installation in utility room. A vaporizing burner is used, which reportedly burns 30 to 40 per cent less oil than the average burner — a maximum of only $\frac{5}{10}$ gal. per hour at high fire. The small size and high heating efficiency of this unit are made possible by the *Miller Heat Spiralator* principle, which builds up pressure instead of a draft in the firing zone, re-

(*Continued on page 136*)

To eliminate the chore of clearing snow and ice from sidewalks, steam piping is embedded in 100 ft. of concrete paving before the new office building of Heekin Can Co., Cincinnati. The wrought iron pipe connects with steam system used to heat water for panel-heating floor coils within the building. Photo courtesy of A. M. Byers Co., Pittsburgh, Penn.

MANUFACTURERS' LITERATURE

AIR CLEANERS

(1) Hydro-Whirl Dust Collectors and (2) Hydro-Whirl Spray Booths (Bulletins 101 and 201). Technical bulletins giving complete information and specifications on a line of wet dust-collectors and wet-type spray booths. Information in (1) includes operation and installation details, typical applications, planning methods, table of suggested air volumes. Second booklet describes batch type, down-draft and conveyorized spray booths, points out the chief features of the Hydro-Whirl line, discusses selection of size and type, arrangement and maintenance. 16 pp. ea., illus. Peters-Dalton, Inc., 17900 Ryan Rd., Detroit 12, Mich.

ALUMINUM BUILDING WIRE

Hazard Aluminum Building Wire. The story of aluminum insulated wire and cables; carrying capacity, durability, voltage drop, sizes, corrosion resistance; dimensional data table and table of comparison with copper conductors. Price lists separate. 6 pp. Hazard Insulated Wire Works, Division of the Okonite Co., Wilkes-Barre, Penn.

BOILERS

Double-Pass Firebox Boilers (Bulletin RM-1, 6th ed.). Illustrates and describes a line of riveted or welded double-pass steel firebox boilers built especially for stoker, oil or gas firing. Includes ratings and dimensions tables for each of the three series in the line. 8 pp., illus. The Brownell Co., 430 N. Findlay St., Dayton 1, Ohio.

DATA BOOK

Horn Construction Data and Handbook. New edition. First section gives compact technical data on all Horn products such as flooring materials, exterior and interior coatings, roofing materials and waterproofings. Second section contains many useful tables, conversion factors, weights and strengths of building materials, etc. 96 pp., illus. A. C. Horn Co., Inc., 43-36 Tenth St., Long Island City 1, N. Y.*

ENAMEL ON STEEL

Porcelain Enamel on Steel in Architecture. An outline of many uses of porcelain enamel on steel in the architectural field; includes sketches and details of both exterior and interior applications; points out advantages claimed (color, texture, durability, etc.); tabulates uses in various types of buildings. 32 pp., illus. U. S. Steel Corp. Subsidiaries, 429 Fourth Ave., Pittsburgh 19, Penn.,* or any office of the following U. S. Steel subsidiary companies: Carnegie-Illinois Steel Corp.; Columbia Steel Co.; Tennessee Coal, Iron and Railroad Co.; and U. S. Steel Export Co.

GASOLINE APPLIANCES

Design for Better Living. Booklet describing and illustrating the uses of gasoline lamps, lanterns, irons, burners and portable cooking units. Includes full information on a new line of oil-fired heaters. 26 pp., illus. The Coleman Co., Inc., Wichita 1, Kansas.

HEATING

Automatic Control of Radiant Panel Heating. A comprehensive and useful manual on the control of panel heating, covering the theory of control and the applications of controls. First section compares the control requirements of panel and convection heating and their inherent controllability, discusses in detail the theory of panel heating control. Second section includes a set of three design graphs (ceiling, wall and floor panel) and a series of generalized control-system diagrams for various typical installations, each with a brief description. 40 pp., illus. Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.* *$1.00.*

Warm Air Radiant Panel Heating. Installation of the Panelaire System in a ranch-type house. Description of the special construction required. Floorplan with overlay showing location of heating unit and the baffles which determine the path that the warmed air will follow. 16 pp., illus. Surface Combustion Corp., Toledo 1, Ohio.*

HOME ELECTRICITY

(1) Home? and **(2) The G-E Electric Sink Does the Hard Work in My Kitchen.** The first of these two new booklets covers every detail of house wiring, shows what electricity can do in making rooms more livable and useful, includes full definitions of commonly used electrical terms and symbols, and offers a special section for architects and contractors giving information on the size of wire recommended, the number of outlets required in various rooms, the spacing of the outlets, etc. The second booklet gives a full description of the G-E automatic dishwasher and Disposall, including their operation and features. 36 and 16 pp. respectively, illus. Appliance and Merchandise Dept., General Electric Co., 1285 Boston Ave., Bridgeport 2, Conn.* *(1) 10 cents; (2) 5 cents.*

KITCHENS

American Kitchens Styled in Steel. Kitchen planning with welded-steel units. Fundamentals of planning, typical layouts for kitchens of various types: U-shaped, corridor-type, L-type, panel-type. Specifications of the units in the American line. 34 pp., illus. American Central Mfg. Corp., Connersville, Ind.*

LIGHTING

Lighting to a T. Detailed brochure on cold cathode lighting and how to plan it. Includes engineering and design data, information on color control, efficiency, cost, installation, applications. Formula for determining tubing footage and its arrangement. Table of recommended levels of illumination. 20 pp., illus. Cutler Light Mfg. Co., 2026 N. 22nd St., Philadelphia 21, Penn.

PLUMBING

Norman Boosey Mfg. Co. Catalog. Description, installation details, price listing of a full line of plumbing products. Indexed and classified for handy reference. 234 pp., illus. Norman Boosey Mfg. Co., Division of American Skein and Foundry Co., 420 N. LaSalle St., Chicago 10, Ill.*

Presenting the 1947 Crane Plumbing and Heating Line. Description of all items now being manufactured by Crane, together with a number of items not yet in production. Features the "Dial-Ese" faucet and color photos of suggested bathrooms, powder rooms and kitchens. Includes specifications of all units. 24 pp., illus. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

PROJECTION SCREENS

Radiant Projection Screens (Bulletin No. 6002). Folder showing full line of screens in tripod, box, wall and easel types, with accessories. Includes specifications, table of sizes and prices, and a screen selector giving complete screen sizes for various lenses and projector-to-screen distances. Illus. Radiant Mfg. Corp., 2607 W. Roosevelt Rd., Chicago 8, Ill.

ROOFING AND SIDING

(1) Reynolds Lifetime Aluminum Corrugated Roofing and Siding; (2) Aluminum "Snap-Seal" Roofing; (3) Aluminum Shingles; (4) Aluminum Clapboard Siding. Set of descriptive folders giving specifications, installation details, main features, advantages claimed. 4 pp., ea., illus. Reynolds Metals Co., Building Products Division, Louisville 1, Ky.*

(Continued on page 144)

* Other product information in Sweet's File, 1946.

PLAYGROUND EQUIPMENT

NEW YORK City Housing Authority places great stress upon the importance of popular playgrounds for the children of tenants in its housing developments. Considerable thought and ingenuity have gone into its studies of individual units of playground equipment. An understanding of child psychology and experience with existing playgrounds lead its designers to believe that many popular, safe, and inexpensive items of equipment can be made from simple building materials: concrete, sewer pipe, wood beams, cinder block.

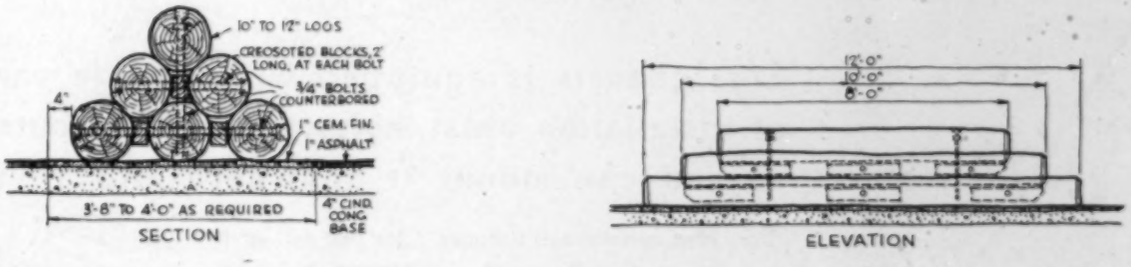
Children like to play about building walls under construction; hence, the dodger with its maze of foundation walls. They like to balance on logs and rails, crawl through large pipe, duck into "foxholes." For more imaginative play, there are the concrete boat, airplane, and stage.*

Few playgrounds are large enough to require all of these items of permanent equipment, but selected ones might add to the fun of children in housing developments, schools and camps. The designs are patented, but New York City Housing Authority welcomes their use in such projects. The dimensions shown are mere suggestions, and can readily be adapted to available materials and layouts.

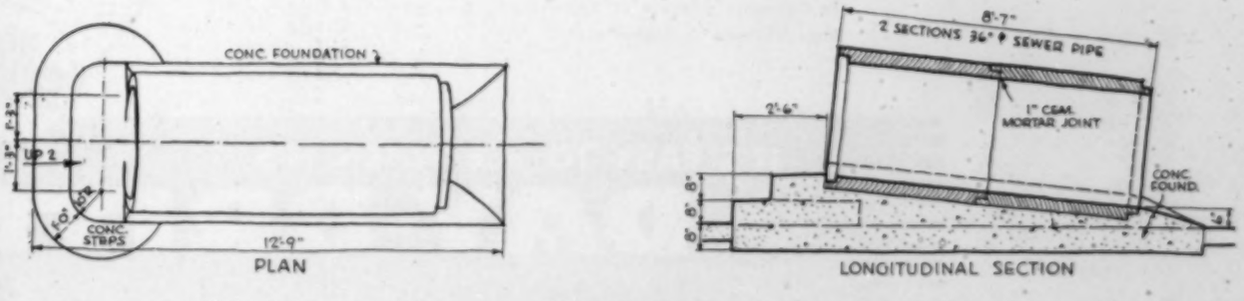
(*Continued on page 119*)

*The dodger and tunnel slide, prototypes of all such equipment, were originated by Alexander J. Moffat and Jacob John Spoon of New York City Housing Authority. (W. C. Vladek, Chief of Project Planning).

FOX HOLE



LOG PILE



TUNNEL SLIDE

VIZ-AID...

...so versatile!

Its chassis is equipped with a wide variety of installation aids: holes, slots, knockouts . . . so you can mount it anywhere and anyway.

Viz-Aid commercial fixtures... for two 40- or two 100-watt lamps. U. S. Patent Nos. D-138990, D-143641, others pending. Request Bulletin 10-B-1 for complete details.

Day-Brite Lighting, Inc., 5465 Bulwer Avenue, St. Louis 7, Mo.

Nationally distributed through leading electrical supply houses. *In Canada:* address all inquiries to Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

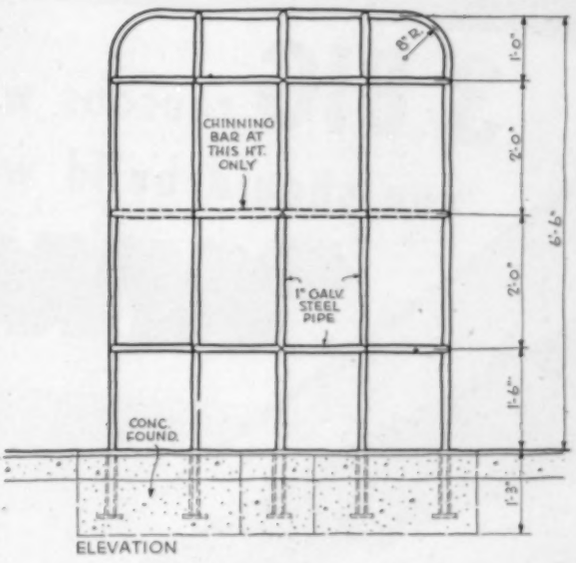
216

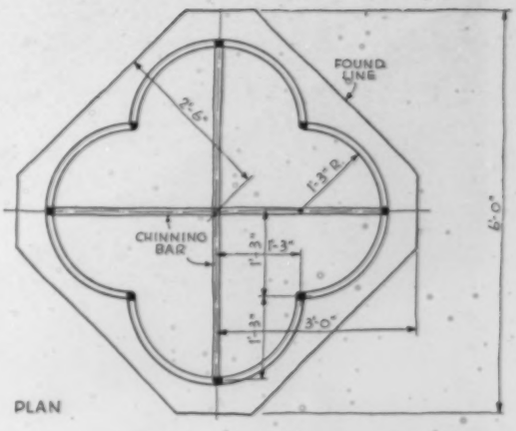
IT'S EASY TO SEE WHEN IT'S

DAY-BRITE

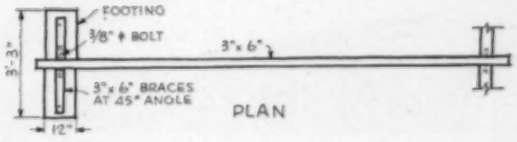
Lighting

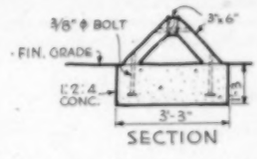
PLAYGROUND EQUIPMENT (Continued from page 117)



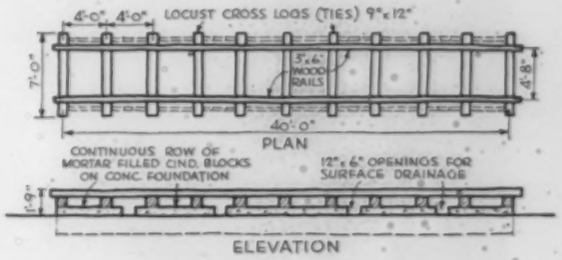


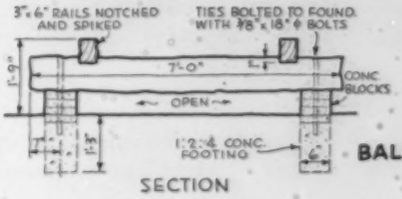
CIRCULAR PLAY UNIT



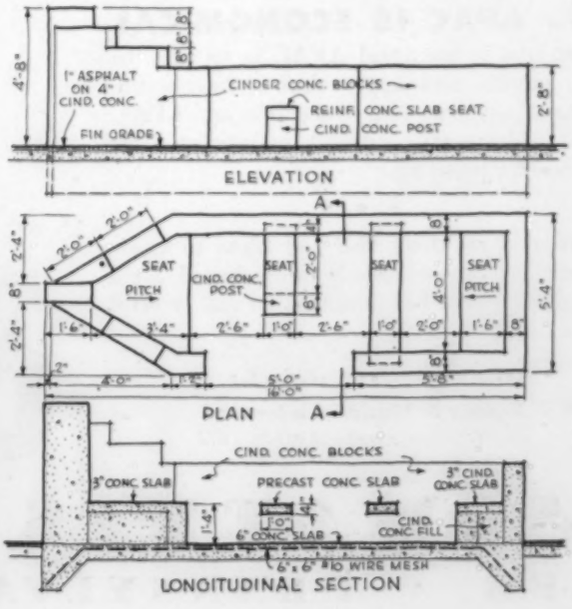


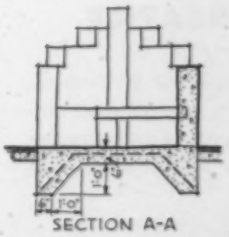
BALANCING BEAM


LOCUST CROSS LOGS (TIES) 9"x 12"
3"x 6" WOOD RAILS
PLAN
CONTINUOUS ROW OF MORTAR FILLED CIND. BLOCKS ON CONC. FOUNDATION
12"x 6" OPENINGS FOR SURFACE DRAINAGE
ELEVATION



BALANCING TRACK





PLAY BOAT

(Continued on page 121).

ASBESTOS IN ACTION

● APAC, used as exterior siding on this huge administration building, combines up-to-the-minute design with maximum durability. Design and Construction by The Austin Company.

Whether your plans include remodeling or new construction, here are 3 compelling reasons why K&M "Century" APAC sheet material is the *right* material to use.

1. APAC IS VERSATILE

Furnished in 4′ x 8′ sheets 3/16″, 1/4″, 3/8″ thick, APAC is easily adaptable to outside sheathing, office panelling, partitions, elevator shaft casings, stock rooms and storage bins . . . in fact APAC has as many uses as a building has surfaces.

2. APAC IS PRACTICAL

Compounded of asbestos and portland cement, APAC is completely fire-resistant, rot-proof, vermin-proof and termite-proof. It makes a neat-looking job and will never deteriorate. Time only toughens it.

3. APAC IS ECONOMICAL

First cost is low, and APAC is so easy to cut, handle and apply that it lowers the cost of construction. Once it's on, APAC lasts indefinitely, without maintenance or protective painting.

• • •

If there's anything else you want to know about this remarkable building board, we'll be glad to give full details. Just call or send us a card.

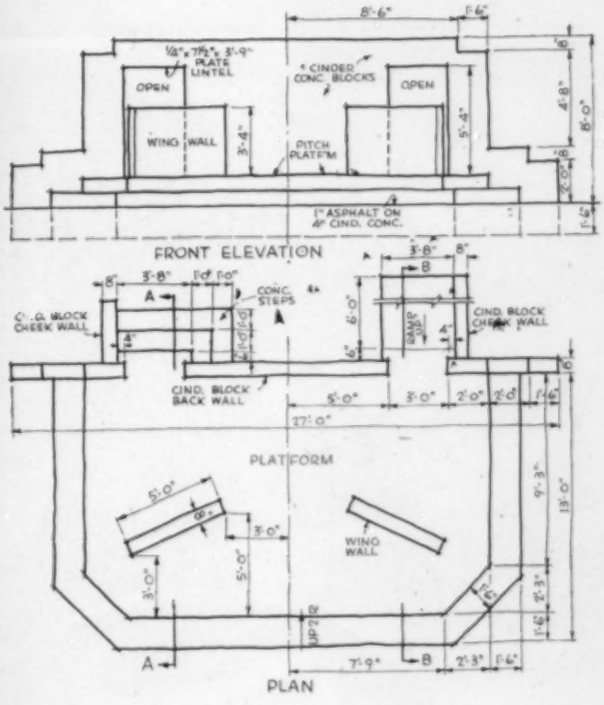
Nature made Asbestos . . .
Keasbey & Mattison has been making it serve mankind since 1873.

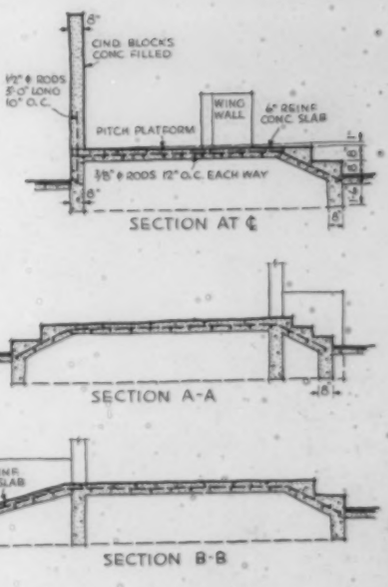
K&M best in asbestos

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

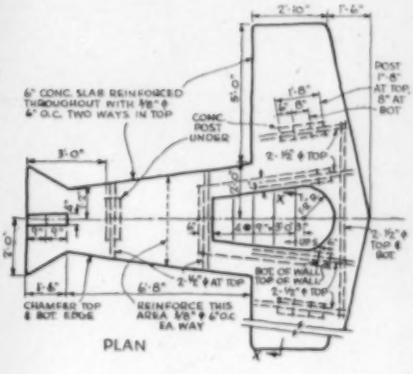
PLAYGROUND EQUIPMENT

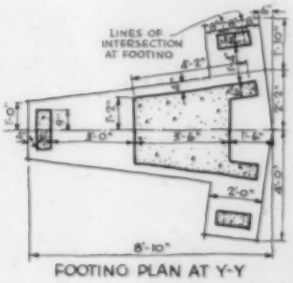
(*Continued from page 119*)

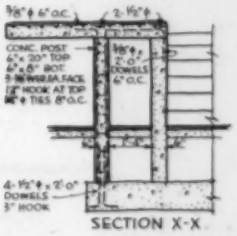


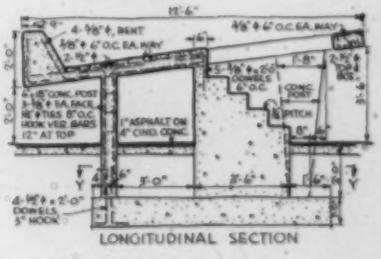


CHILDREN'S STAGE

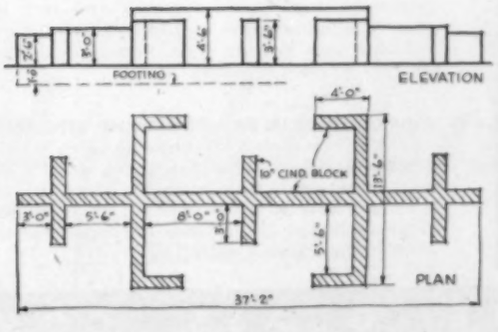


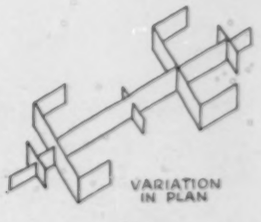






AIRPLANE



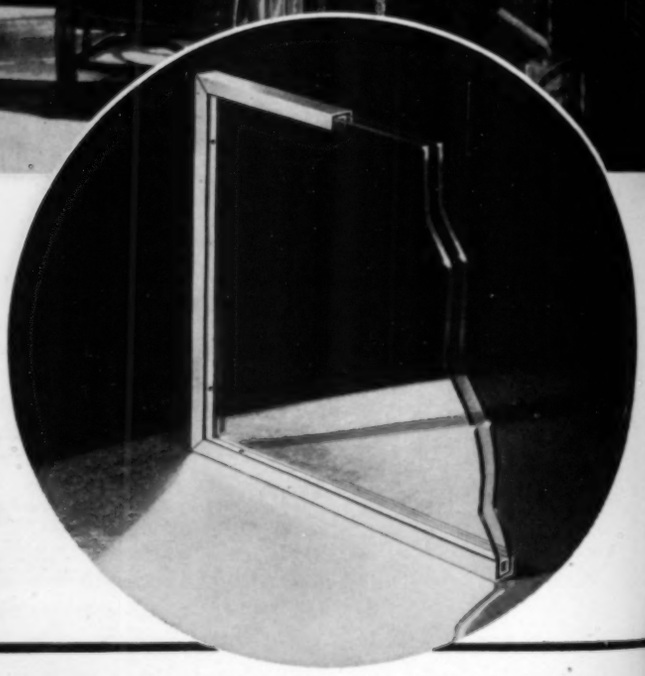


NOTE: PROVIDE OPENINGS FOR SURFACE DRAINAGE AT FINISHED GRADE LEVEL.

DODGER

Practical applications of Glass

ATTRACTIVE SURROUNDINGS are an invitation to the architect to take advantage of them in designing a home. For this reason large window areas, glass panels, even glass walls have grown in favor during recent years. Pittsburgh Polished Plate Glass has been consistently selected by many architects to glaze such areas. Now, Twindow, Pittsburgh's new window with built-in insulation, makes such applications more practical than ever before. For Twindow affords not only clear vision, beauty, and generous light transmission, but the comfort and economy of efficient insulation as well. Architect: Anthony Thormin.



TWINDOW, Pittsburgh's new window with built-in insulation is made up of 2 or more panes of Pittsburgh Glass with a sealed-in air space between them. When Twindow is composed of 2 sheets of glass, it provides almost double the insulating effectiveness of single-glazed windows—and even better insulation when 3 or more panes of glass make up the Twindow unit. Twindow cuts heating costs, minimizes downdrafts, virtually prevents steamed windows.

WIDE LATITUDE IN BATHROOM AND KITCHEN DESIGN is made possible when Carrara Structural Glass is selected for walls, wainscots, ceilings. This glass comes in 10 beautiful shades. It won't craze, check, stain or absorb odors. It is readily decorated in various ways. It is easy to clean. (Note the Heavy Plate Glass shower enclosure in this room, the decorative, horizontal mirror strips in the Carrara walls.)

PITTSBURGH PLATE GLASS COMPANY

in residential buildings

DECORATIVE POSSIBILITIES of Pittsburgh mirrors are illustrated by this example of a map, sand-blasted on the mirror to 5 different depths, and then the whole mirror panel edge-lighted. Edge-lighting through the various levels of sand-blasting, gives the map varying tonal values. Combined with mirror-backed shelves and glass desk, the effect of this "mirror mural" is striking.

THE APPEALING GOOD LOOKS and practical virtues of PC Glass Blocks have made them a favorite among the newer building materials. They transmit daylight generously, and yet preserve privacy. They have noteworthy insulation properties. They are available in various attractive patterns and sizes. Designed by Paul Laszlo.

We believe you will find much to interest you in our illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

★ **Design it better with**

Pittsburgh Glass

"PITTSBURGH" stands for Quality Glass and Paint

PITTSBURGH PLATE GLASS COMPANY

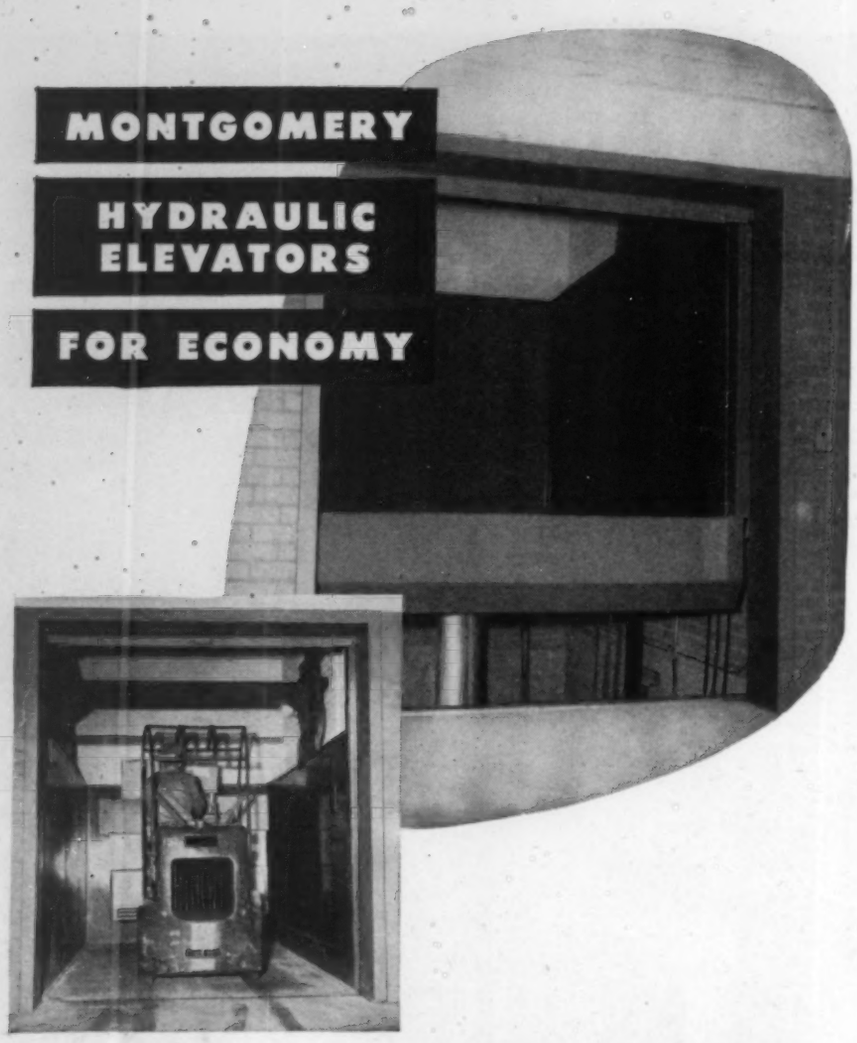
Pittsburgh Plate Glass Company
2028-7 Grant Building, Pittsburgh 19, Pa.

Please send me, without obligation, your booklet entitled: "Ideas for the Use of Pittsburgh Glass in Building Design."

Name.....

Address.....

City..... State.....



QUICK DELIVERY!

Montgomery Elevator Company has been able to increase production facilities to a point where quick delivery can be made on Standard Model Hydraulic Elevators.

FEATURES

INITIAL LOW COST — Montgomery Hydraulic Elevators . . . both freight and passenger . . . eliminate building cost of penthouse. Load bearing walls are unnecessary. Designed and built to meet service requirements where travel is limited to 36 feet.

OPERATIONAL ECONOMY — Hydraulic principle reduces operation expenses. All down travel by gravity.

STANDARDIZATION — Montgomery takes the lead in standardizing complete installations. From years of experience and thousands of jobs, several standard selections were chosen. This assures better delivery, lower cost.

SERVICE — Montgomery direct factory agents and branch offices in all principal localities offer the highest in efficient and prompt service.

Get complete details. Write for new Montgomery Hydraulic Elevator folder.

MONTGOMERY
Dependable ELEVATORS

MONTGOMERY ELEVATOR COMPANY
HYDRAULIC DIVISION—MOLINE, ILLINOIS
Branch offices and Agents in all principal cities

THE RECORD REPORTS

(*Continued from page 16*)

Show, sponsored by Home Builders Council of New York, New Jersey and Connecticut; Grand Central Palace, New York City.

May 6–8: The President's Conference on Fire Prevention, Federal Works Bldg., Washington 25, D.C.

May 6–10: 2nd National Plastics Exposition and Annual Convention, The Society of the Plastics Industry, Coliseum, Chicago.

June 12–22: 2nd annual Construction Industries Exposition and Home Show, Pan-Pacific Auditorium, Los Angeles.

June 16–19: Semi-annual Meeting, American Society of Mechanical Engineers, Stevens Hotel, Chicago.

July 7–13: 1st Annual Store Modernization Show, Grand Central Palace, New York City.

Sept. 1–4: Fall Meeting, American Society of Mechanical Engineers, Hotel Utah, Salt Lake City, Utah.

Nov. 3–7: 2nd International Lighting Exposition and Conference, Stevens Hotel, Chicago.

Dec. 2–5: Annual Meeting, American Society of Mechanical Engineers, New York or Atlantic City.

COMPETITIONS OPEN

Memorial Scholarship

The Managing Committee of the John Stewardson Memorial Scholarship in Architecture has announced a competition for a scholarship of the value of $1000, the holder of which is to pursue the study of architecture in the United States or foreign countries as determined by the Committee and under its direction.

Citizens of the United States who shall have studied or practiced architecture in the State of Pennsylvania for the period of at least one year immediately preceding the scholarship award are eligible to complete for the scholarship. Candidates must be not less than 22 nor more than 32 years of age on March 13, 1947, the final day for the receipt of applications. For further information and registration blanks, address the Secretary, Morton Keast, 1108 Commonwealth Bldg., 1201 Chestnut St., Philadelphia 7, Penn.

Masonry Home

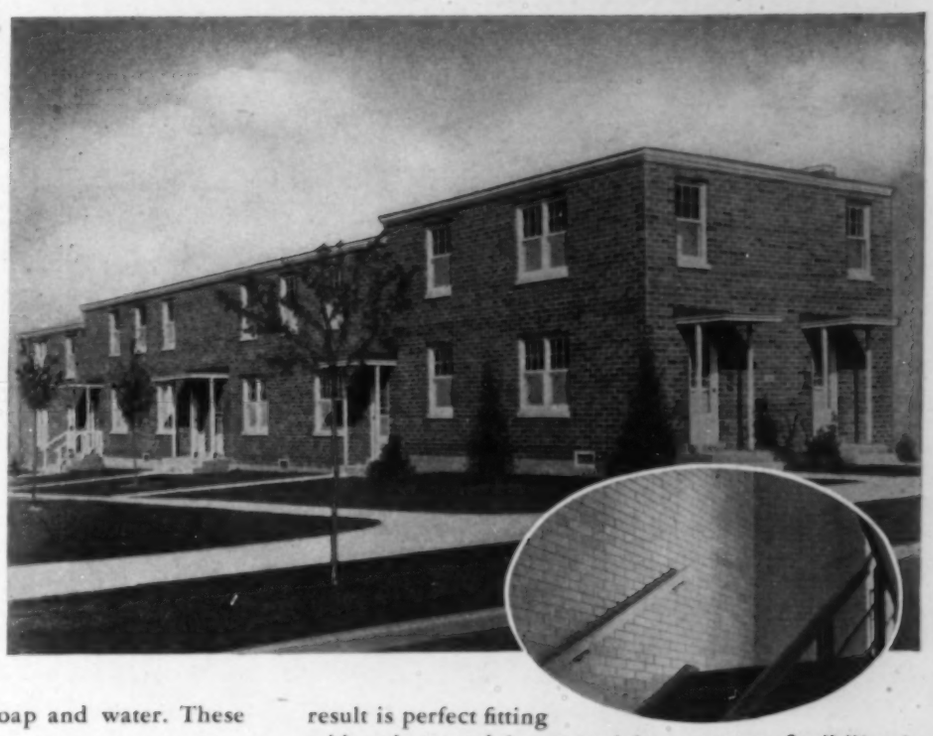
A "Plasticrete Home" competition to select an architect for a firesafe, masonry home to be erected in Hamden, Conn., has been announced by The Dextone Co. of New Haven, The Wm. M. Hotchkiss Co. of New Haven and Bridgeport, and Plasticrete Corp. of Hamden, Conn., joint sponsors.

The purpose of the competition is "to encourage the development of firesafe

(*Continued on page 126*)

Facing tile for Rental Housing

fire-safe... cuts maintenance costs... assures earlier use



All these very important considerations for the low-cost Rental Housing you design are made possible by Structural Clay Facing Tile.

Unglazed Facing Tile lends itself very well to exteriors. For interiors, either glazed or unglazed is used. Both are *fire-safe*. Both go up fast and help assure *earlier use* of the structure.

Because Facing Tile is strong and durable and stands rough usage, it has become common practice to use it in stairwells and corridors. It does not scratch, crack, mar or decay. Structural Clay Facing Tile is colorful... easily cleaned with soap and water. These advantages help cut maintenance costs.

With a permanent finish and a wall of great strength in one material, Facing Tile means less time and money spent for construction... earlier returns on investment... less financing.

Many of these advantages are made more certain by the present production of Facing Tile in modular sizes. The result is perfect fitting with other modular materials... greater flexibility in design... less time for drafting and site supervision... less material waste... better workmanship with reduced labor... earlier occupancy.

Any Institute Member will gladly furnish more information, or write direct to Desk AR-3 of the Institute. See Sweet's 1947 Architectural Catalog for additional data.

INSTITUTE MEMBERS

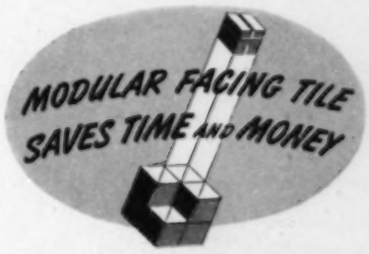
Belden Brick Company
Canton, Ohio

Continental Clay Products Co.
Kittanning, Pennsylvania

Charleston Clay Products Co.
Charleston 22, West Virginia

Hanley Company
New York 17, N. Y.

Hydraulic Press Brick Co.
Indianapolis, Indiana



Mapleton Clay Products Co.
Canton, Ohio

INSTITUTE MEMBERS

Metropolitan Paving Brick Co.
Canton, Ohio

National Fireproofing Corp.
Pittsburgh 12, Pennsylvania

Stark Brick Company
Canton, Ohio

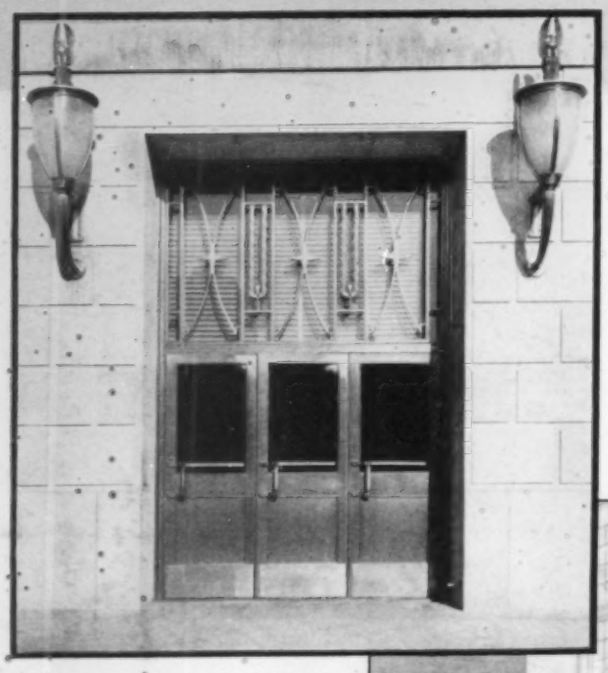
Stone Creek Brick Company
Stone Creek, Ohio

West Virginia Brick Company
Charleston, West Virginia

FACING TILE INSTITUTE

1756 K STREET, N. W. • WASHINGTON 6, D. C.

Don't Overlook
MICHAELS PRODUCTS
in Your Building Plans



The manufacture of ferrous and nonferrous metal building products has always been a major part of our business. And now that restrictions are lifted, and materials obtainable, we offer to architects and builders a variety of bronze, aluminum and nonferrous metal products. For specific requirements Michaels craftsmen will faithfully reproduce in metal the most intricate architectural designs. If your plans include metal products, write us.

MICHAELS PRODUCTS

Fixtures for Banks and Offices
Welded Bronze Doors
Elevator Doors
Elevator Enclosures
Check Desks (standing and wall)
Lamp Standards
Marquise
Tablets and Signs
Name Plates
Railings (cast and wrought)
Building Directories
Bulletin Boards
Stamped and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Wrought Iron and Bronze Lighting Fixtures
Wire Work
Cast Thresholds
Extruded Thresholds
Extruded Casements and Store Front Sash
Bronze and Iron Store Fronts
Bronze Double Hung Windows
Bronze Casement Windows

THE MICHAELS ART BRONZE CO., Inc., Covington, Kentucky

Manufacturers since 1870 of many products in Bronze, Aluminum and other metals

THE RECORD REPORTS

(*Continued from page 124*)

home design with Plasticrete Bloc walls and Lith-I-Bar floor construction . . . and to demonstrate the design characteristics, economy and other desirable qualities of contemporary concrete masonry construction." First prize will be $1000, second will be $350, and third, $250. All architects and designers living or practicing in Connecticut are eligible to compete.

For further information and copies of the program, address the professional adviser, Harold D. Hauf, A.I.A., c/o Department of Architecture, Weir Hall, Yale University, New Haven 7, Conn.

Church Design

An open competition for students in architecture in American schools and colleges is being conducted by the Interdenominational Bureau of Architecture, the Church Architectural Guild of America, and Christian Herald.

Prizes are offered as follows: first, $250; second, $75; third, $50; fourth, $35; and 6 honorable mentions of $15 each.

The registration fee of $1.00 must be sent in by October 10, and material submitted by December 24, 1947. The program and full information may be obtained from Elbert M. Conover, Director, Interdenominational Bureau of Architecture, 297 Fourth Ave., New York 10, N. Y.

AT THE COLLEGES

Fellowships Announced

The University of Pennsylvania, School of Fine Arts, has announced the following graduate fellowships and scholarships in architecture for 1947–48: two $1000 Theophilus Parsons Chandler Fellowships in Architecture, for advanced study; the Albert Kahn Scholarship in Architecture, providing a maximum of $1100 toward tuition and other expenses; two University Graduate Scholarships providing tuition; and the Albert Kahn Scholarship in Industrial Architecture ($250). For further information address the Dean of the School of Fine Arts. All applications must be made by May 17, 1947.

The Graduate School of Design of Harvard University will offer two or three fellowships for advanced study in city or regional planning for the academic year 1947–48. The stipends will not exceed $1500 each. Applications should be made prior to April 1, 1947, to the Chairman of the Department of Regional Planning, Hunt Hall, Harvard University, Cambridge 38, Mass.

The School of Engineering of The Pennsylvania State College has an-

(*Continued on page 128*)

Now your clients will ask you about REYNOLDS *Lifetime* ALUMINUM SHINGLES AND CLAPBOARD SIDING

Reproduced above is the initial full-color center spread in The Saturday Evening Post ...beginning a full schedule of 4-color pages in The S E P, Better Homes & Gardens, House Beautiful and The American Home.

WE'RE telling *your* clients about the advantages of aluminum building materials . . . fire-proof, rust-proof, rot-proof, vermin-proof . . . giving better appearance, greater comfort, more *lasting value* for the 1947 building dollar.

You'll find new scope for architectural design in these modern materials. Choose between the traditional effect of clapboard siding, with either individual shingles or the handsome, low-cost, big-sheet "Snap-Seal" roofing. The aluminum weathers to a beautiful dull-gray to blend with any architectural style. Or it takes paint well when desired.

Another big architectural point is the *insulation* value! Aluminum reflects up to 95% of all radiant heat. Keeps an interior amazingly cooler in summer—and warmer in winter, with less fuel.

Be prepared for this national advertising...which will have your clients asking *you* all about Reynolds Lifetime Aluminum Building Products. Write now for your A.I.A. Files. Reynolds Metals Company, Building Products Division, Louisville 1, Kentucky.

Available now in any quantity!

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM — REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

"SNAP-SEAL" ROOFING gives the economy of big-sheet installation plus handsome weathertight interlock which covers all nails. Suitable for finest buildings — home, farm, commercial, industrial.

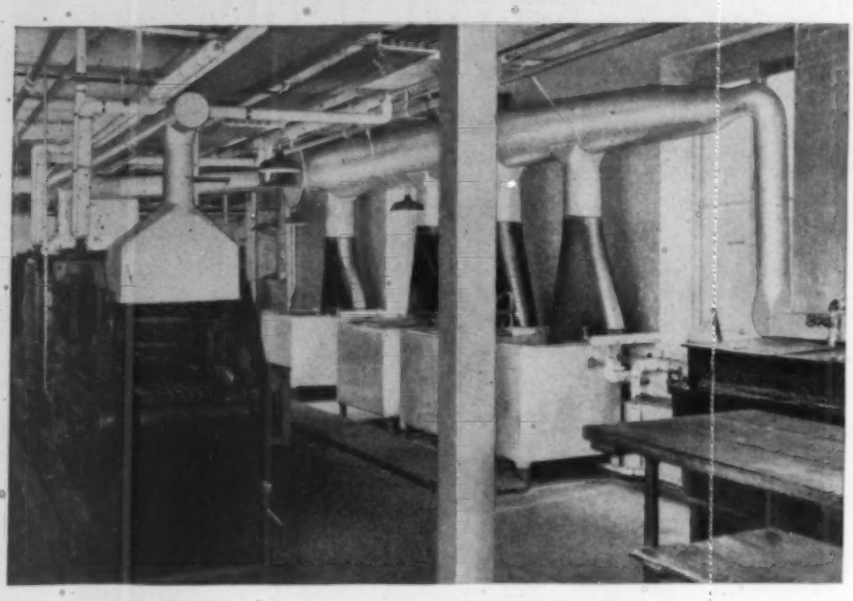
WEATHERBOARD SIDING gives economical big-sheet coverage in a handsome four-inch clapboard effect. Special corner posts for neat finishing.

Hundreds of millions of square feet already produced and delivered:

Aluminum Corrugated and 5-V Crimp Roofing and Siding, Studs, Trusses, Window Frames, Garage Doors, Reflective Insulation, Complete Aluminum Houses.

PUT FIRST THINGS FIRST

In Industrial Ventilation



Clients Want *AIR MOVEMENT*

Fundamental? Yes. The *first* thing good industrial ventilation must do is to move air. But that doesn't necessarily mean big, bulky, costly installations. *Functional design* is the No. 1 "must" for high efficiency, simplified layouts, and space and money savings. That's why Propellair double-action fans offer you and your clients *many* advantages.

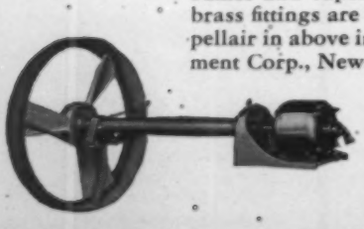
HIGH VELOCITY, HIGH VOLUME

Like modern aircraft wings, *both surfaces* of Propellair airfoil blades produce air movement—the back even *more* than the front. Scientific design makes entire blade length work—*not* just the tip—for uniform air flow over whole fan area. Entrance ring is airfoil-principle—prevents "tip recirculation"—makes blade efficiency *pay off* in high velocity, high volume.

Capable, compact Propellairs are the answer to *every* industrial ventilating need. Types and sizes for every service and location. Qualified sales engineers in principal cities. Write for *all* the facts.

7000 c.f.m. from 1½ h.p. Motor

Fumes and vapors from the process cleaning of small brass fittings are collected and exhausted by a 24" Propellair in above installation at Weston Electrical Instrument Corp., Newark, N. J. Right foreground, degreasing tank. Left, conveyor-type gas-fired oven. Along wall, tanks for acid dip and water rinse. These are vented by slot-type hoods to pull fumes away from operator. Fan is located in duct beyond tanks.



PROPELLAIR, Inc.

SPRINGFIELD · OHIO

THE RECORD REPORTS

(*Continued from page 126*)

nounced that 10 sponsored graduate fellowships with stipends ranging from $750 to $1800 per year are available for 1947–48. The School is also offering 10 departmental graduate assistantships at $1000 per year and a number of full-time research assistantships. For further information address H. P. Hammond, Dean, School of Engineering, The Pennsylvania State College, State College, Penn.

New Buildings

At Western Reserve University, Cleveland, immediate construction is planned for a $205,000 addition to the School of Law and a $95,000 Karl E. Davis Memorial Building.

The Law School building will be an extension of the present annex back of the main building of the School. It will provide classrooms for the greatly expanded student enrollment.

The Memorial Building, to be used for a veterans' dormitory, will provide additional locker and shower space for the gymnasium. It is so planned that when the need for housing becomes less acute the second floor can be converted into areas for boxing, wrestling and classrooms. It is expected to be ready for occupancy by the beginning of the spring session next month.

Hospital Planning Conference

A Conference on Hospital Planning will be held April 4–6 at the College of Architecture and Design, University of Michigan, Ann Arbor, under the sponsorship of The Ann Arbor Conference, an informal group of practicing architects and educators.

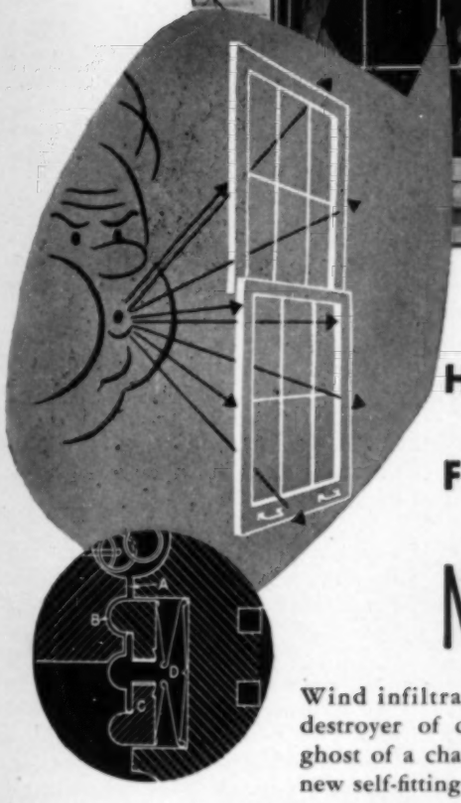
Prominent hospital architects, hospital consultants, representatives of the U. S. Public Health Service and the American Hospital Association will participate in the three-day meetings. Chairman is Kenneth Black, of Lansing, Mich.; Amedeo Leone of Detroit, Alden Dow of Midland, Mich., and Walter Rolfe, of Houston, Texas, form the program committee.

Architects concerned with hospital work are invited to the extent of room accommodations. For reservations address Wells I. Bennett, Dean, College of Architecture and Design, 207 Architecture Bldg., Ann Arbor, Mich.

New Courses

An interesting new course in Mechanical Equipment of Buildings was inaugurated on January 23rd at the University of California Extension Division. To last 18 weeks, the course will cover heating, refrigeration, ventilation, air

(*Continued on page 130*)



HARDLY A GHOST OF A CHANCE FOR *Wind* TO GET THROUGH

NEW SELF-FITTING SILENTITE

Wind infiltration—that fuel-eating destroyer of comfort—has hardly a ghost of a chance to get through the new self-fitting Silentite window.

Thanks to scientific engineering, the new Silentite has "floating" weather-stripping. The wood sliding bars, which are seated on full-length bronze weather-strips, press tightly against moving parts of window and keep each in firm contact with the sash, regardless of its position.

At the head, a spring leaf is compressed by the top rail when the sash is closed, providing a weather-tight fit. At the meeting rails, interlocking weather-strip members solve an age-old problem. At the sills, another spring leaf weather-strip foils infiltration.

No wonder this new Curtis self-fitting Silentite is *20% more weather-tight* even than the original Silentite—which was America's first "insulated" window!

Here are some additional reasons why you'll want to specify CURTIS SILENTITE!

* Silentite is a Wood Window—and wood is a natural non-conductor of heat and cold. It is toxic-treated to give it longer life.
* Amazingly easy operation—famous Silentite spring suspension. No weights, cords or pulleys to get out of order.
* New locking safety—new self-fitting Silentite locks in two positions. Window can be left open 6 inches for ventilation and yet be securely locked.
* Easy installation—sash put in with minimum effort. Windows accurately pre-fitted at factory—no fitting required on job.
* Streamlined beauty—sturdy, one-piece narrow mullion, more glass area for given openings.

1866 CURTIS WOODWORK SILENTITE PRE-FIT the "Insulated" window

MAIL THE COUPON FOR COMPLETE FACTS ABOUT THIS AMAZING WINDOW IMPROVEMENT

CURTIS COMPANIES SERVICE BUREAU
AR-3S Curtis Building
Clinton, Iowa

Gentlemen: Please send me your new book on the new Silentite Window line.

*Name*_____

*Address*_____

*City*_____ *State*_____

conditioning, plumbing, fire protection, electricity, acoustics, lighting, law, etc.

The Division of Social Philosophy of The Cooper Union, New York, has announced a meeting on April 11 on "How New is Modern Architecture?" Speaker will be Henry-Russell Hitchcock, professor of Fine Arts, Wesleyan University.

The New School, New York City, is currently holding a special series of lectures entitled "Planning for Our Communities." Covering such subjects as the elements of city planning, traffic and transportation, official media of planning, housing, and urban land economics, the 15-week course is under the direction of Charles Abrams and Henry S. Churchill.

Special Veteran Course

Fourteen G.I.'s, all employed in architects' offices in the greater Pittsburgh area, form the special evening class in architecture now being held at Carnegie Institute of Technology. Believed to be the first G.I. apprentice training group to be organized in the professional field, the class is sponsored by the Pittsburgh Chapter, A.I.A.

The group meets twice a week, will complete 120 hours of training under the apprentice training program of the government. Class instructor is Rody Patterson, himself a veteran of both World Wars, and member of Palmgreen, Patterson & Fleming, Pittsburgh architectural firm.

HONORS CONFERRED

Tribute to Greenley

At a testimonial dinner and special program in his honor on the 25th anniversary of his presidency of the Architectural League of New York, Howard Greenley was awarded the League's President's Medal.

The 20th president of the League, Mr. Greenley is architect of the Prince George Hotel and the interiors of the Lord Duveen mansion in New York City; of the house of Alanson B. Houghton, ex-ambassador to Germany and England, in Corning, N. Y.; of residences for Edson Bardley at Newport, R. I., and Charles A. Coffin in Locust Valley, L. I.; and of picture galleries for the late Joseph E. Widener at Elkins Park, Philadelphia.

Mr. Greenley started his architectural career in the offices of Carrere and Hastings, architects of the New York Public Library. Following his graduation from the Ecole des Beaux Arts in Paris in 1901, Mr. Greenley was associated with Arnold Brunner. From 1903 to 1932 he headed up his own architectural firm.

Participating in the tribute to Mr. Greenley were all living presidents of the League, 10 honorary members, and 120 men who have been members for more than 25 years. Also participating were The Metropolitan Museum of Art, National Academy of Design, American Academy in Rome, New York Chapter of the A.I.A., Faculty of Fine Arts of Columbia University, American Academy of Arts and Letters, National Institute of Arts and Letters, Society of Beaux Arts Architects, and others.

Engineers Honored

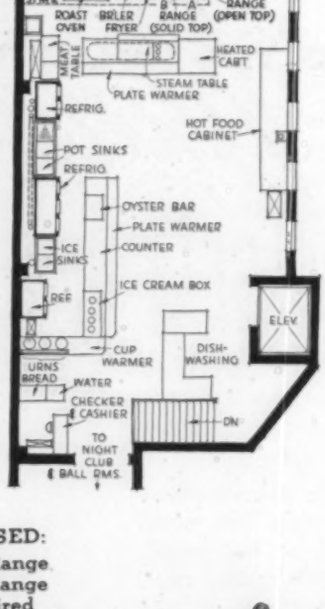
Conferring of honorary membership upon four of its distinguished members featured the 94th annual meeting of the American Society of Civil Engineers in January. The men honored were: A. W. K. Billings, retired president of the Brazilian Traction, Light & Power Co.; Charles B. Burdick, Chicago consulting engineer; Albert P. Greensfelder, St. Louis contractor and civic leader; and LeRoy K. Sherman, Chicago consulting engineer.

(*Continued on page 132*)

KITCHEN PLAN NO. 41:

Forty-first of a series of successful mass-feeding plans.

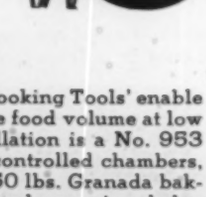
This extremely flexible kitchen at the Hotel Granada, Brooklyn, New York, serves one ballroom seating 600, three seating 150 each and a popular night club seating 350 — with high-grade banquet and á la carte meals.



KEEP FOR HANDY REFERENCE!

COOKING EQUIPMENT USED:

(a) 1 Open Top Gas-fired Range
(b) 1 Solid Top Gas-fired Range
(c) 1 Deep Fat Fryer, Gas-fired
(d) 1 Gas-fired Ceramic Broiler
(e) 1 No. 953 BLODGETT GAS-FIRED ROAST OVEN
(f) 1 Vegetable Steamer
1 No. 982 BLODGETT GAS-FIRED BAKE OVEN
(not shown on plan)



Designed and installed by: H. Friedman & Sons, New York, New York

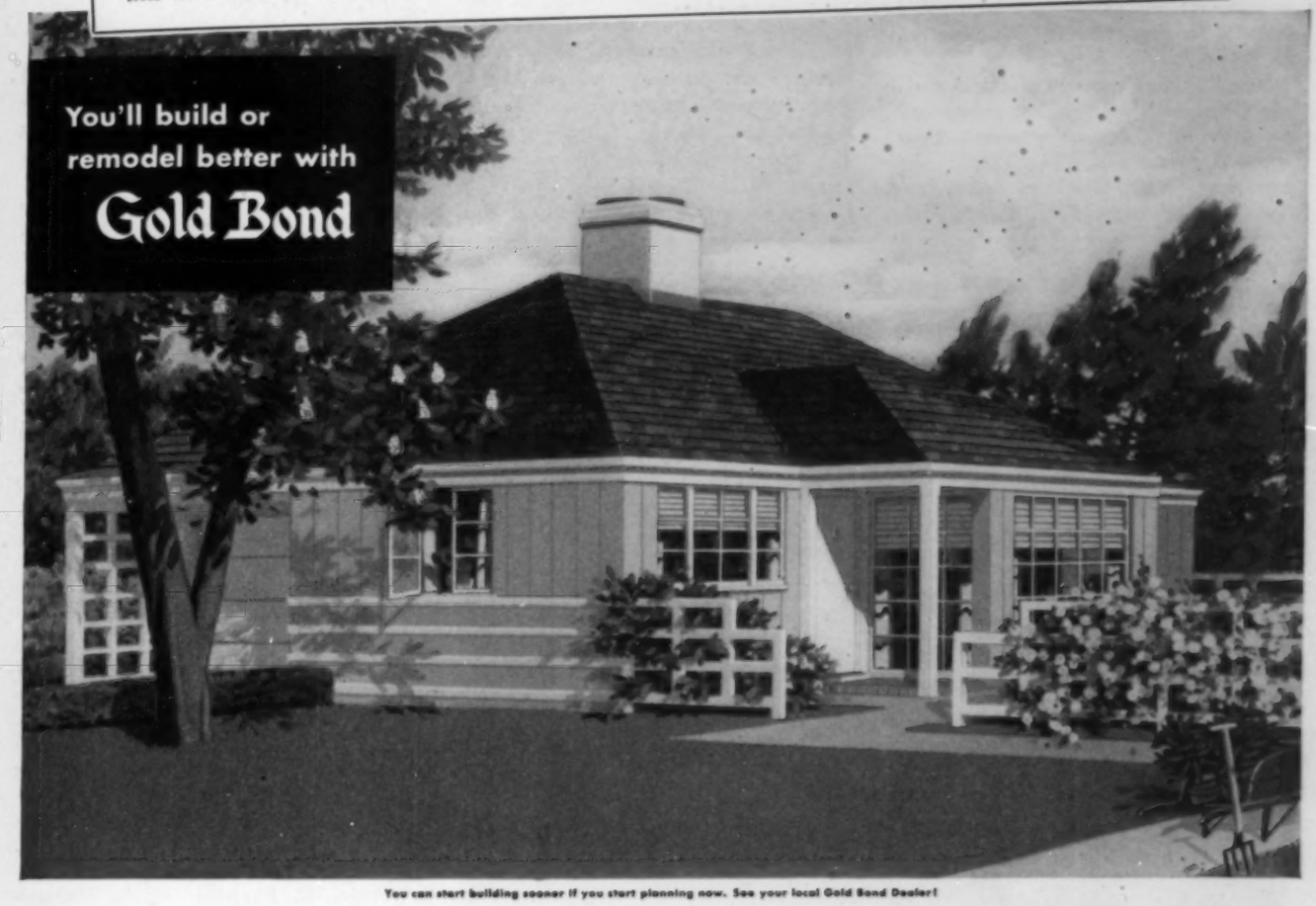
Facile, flexible, speedy gas-fired 'Specialized Cooking Tools' enable the management of the Granada to turn out large food volume at low cost and in short time. The heart of this installation is a No. 953 Blodgett Roast Oven, with three individually controlled chambers, each 42" x 32" x 12" with load capacity of 750 lbs. Granada baking is done in a No. 982 Blodgett, 8 pan gas-fired oven, in a bakeshop on another level.

The G. S. BLODGETT CO., Inc.

50 Lakeside Avenue **Burlington, Vermont**

Send for your copy of the new, deluxe edition of Case Histories of Successful Mass-Feeding Installations Now!

Here's a suggestion for a low-cost house with a wide awake, down-to-earth look about it! This ad appears in full color in the Saturday Evening Post and is another in the Gold Bond series, now in its second year. Stresses the use of Gold Bond Building Materials, sure, but it also plays up the Pride of Home Ownership angle and really does a job for the whole building industry. Thousands of folks will write us for plans of this home and the answer will be, "See your local architect!" National Gypsum Co., Buffalo 2, N. Y.



You can start building sooner if you start planning now. See your local Gold Bond Dealer!

Wonder how many Post readers feel the way I do?

"Someday we're going to have our house, Bill and I. With grass around it, and the blue bowl of the sky over it, and a tree of our own to carve a couple of hearts on if we want to. We're saving, and planning, and each day brings us closer to moving in!"

The house you will build will be a "wonder house" too. For, since Dad built, modern science has taken a hand in new construction materials and methods. Outer walls, for example, now add greater strength and fireproofing when Gold Bond storm sealed gypsum sheathing supplies the base for outside finish. Inside walls and ceilings will give years of trouble-free service when they're made of Gold Bond fireproof gypsum lath and plaster.

Heating costs are reduced as much as 40% in new and old homes with fireproof high-efficiency Gold Bond Rock Wool insulation. And summer comfort is doubled.

You can plan on these scientific building improvements and many more to give you a house that is better in every respect than any that has ever been built before. A house that will serve for many long and happy years with the least amount of repair and upkeep expense.

There are over 150 research produced Gold Bond products that cost no more to specify and use than ordinary building materials. Each of them is engineered to do a specific job better. If you want Gold Bond results, be sure to speak to your architect and builder about using Gold Bond products!

Today our entire production can't keep up with demand. But just the same our more than 10,000 Gold Bond lumber and building material dealers are doing their best, helping veterans to get housed, helping their customers in every way they can. See your Gold Bond dealer first whether you plan to build or remodel. He can help you get what you want, and get it better. Not always right away but tomorrow sure! National Gypsum Co., Buffalo 2, N.Y.

Over 150 tested Gold Bond Building Products for new construction or remodeling add greater permanency, beauty and fire protection. These include wallboard, lath, plaster, lime, sheathing, wall paint, insulation, metal and sound control products.

DEMAND THESE SIX GOLD BOND FEATURES IN YOUR NEW HOUSE

GOLD BOND FIREPROOF GYPSUM SHEATHING

Big, weatherproofed panels of Gold Bond Storm Sealed Gypsum Sheathing add structural strength and built-in fire protection. Costs less than old-style sheathing.

GOLD BOND FIREPROOF GYPSUM LATH

Gold Bond Gypsum Lath is the perfect plaster base. Can't warp, expand or contract. Adds fire protection and structural strength for better wall and ceiling construction.

GOLD BOND FIREPROOF GYPSUM PLASTER

Gold Bond Gypsum Plaster is especially processed to bond perfectly with gypsum lath. Builds fireside, rock-like walls and ceilings with greater durability and beauty.

GOLD BOND FIREPROOF FINISH LIME

Over the plaster goes a coat of Gold Bond Finish Lime. This is the smooth white finish that you see in a new house before the wallpaper or paint is applied.

GOLD BOND FIREPROOF ROCK WOOL INSULATION

Builds a fireproof blanket of insulation around the house for greater year 'round comfort, family health, and fuel savings up to 40%. Available for new or old homes.

GOLD BOND SUNFLEX 1-HOUR WALL PAINTS

Dries in one hour with no objectionable painty, after-odor. Easier to apply. This modern decoration is now available at your dealer's in a full range of colorful tones.

THE RECORD REPORTS (*Continued from page 130*)

ELECTIONS

Morgan L. Fitch of Chicago formally took office as president of the National Association of Real Estate Boards at an installation banquet in Washington, D. C., on January 30th.

The Board of Trustees of The American Designers' Institute has announced the following elections: *president*, Alexander J. Kostellow, New York; *vice presidents*, Ruth Gerth of San Francisco, and Stewart Pike of Philadelphia; *treasurer*, Lionel C. Algoren, Chicago; *secretary*, Ann Franke, New York.

At its 25th annual meeting on January 24th, the Architects Club of Chicago elected R. Harold Zook president, to succeed Benjamin Klekamp. Also elected were: *first vice president*, Murdo Ross; *second vice president*, Walter Buchroeder; *secretary*, Friza Wagner, Jr.; *treasurer*, Edward Baesman; *directors*, Elmer Fox, Frances Dittrich, George Brown, William Jacobson, Earl Boyle, and Edward Hedrich.

Robert R. Clegg, district sales manager of the American Lumber and Treating Co., has been elected president of the Chicago chapter of the Producers' Council.

OFFICE NOTES

Offices Opened, Reopened

Alexander Girard, A.I.A., has opened a new office at 379 Fisher Rd., Grosse Pointe 30, Mich., offering complete design facilities for home, office and industrial fields.

Albert W. Kirschenbaum, Architect-Engineer, has opened offices at 53 W. Jackson Blvd., Chicago 4, Ill.

Samuel M. Kurtz, A.I.A., has resigned his position as associate member of the firm of York & Sawyer, and has opened an office for the general practice of architecture at 101 Park Ave., New York 17.

Onnie Mankki, A.I.A., has opened an office for the practice of industrial design and architecture at 7113 Euclid Ave., Cleveland 3, Ohio. Mr. Mankki was formerly vice president and director of industrial design for Designers for Industry, Inc.

W. Thomas Schaardt, A.I.A., has announced the opening of his office at The Meadowbrook Bldg., Sunrise Highway, Bellmore, N. Y.

New Addresses

The following new addresses have been announced:

Wm. S. Ahern Construction Co., General Contractors, 159 E. Chicago Ave., Chicago 11, Ill.

Leon N. Fagnani, A.I.A., Pennsylvania Railroad Bldg., Wilmington, Del.

H. Russell Kenyon, 107 Union Ave., Mt. Vernon, N. Y.

William J. Potter, Architect, 9 Rockefeller Plaza, New York 20, N. Y.

Firm Changes

D. C. Andrews has been appointed a general superintendent of construction of the Turner Construction Co.

The Clay Sewer Pipe Assn., Inc., has announced the addition to its technical staff of L. O. Keener, for a number of years associated with the Pennsylvania Dept. of Highways.

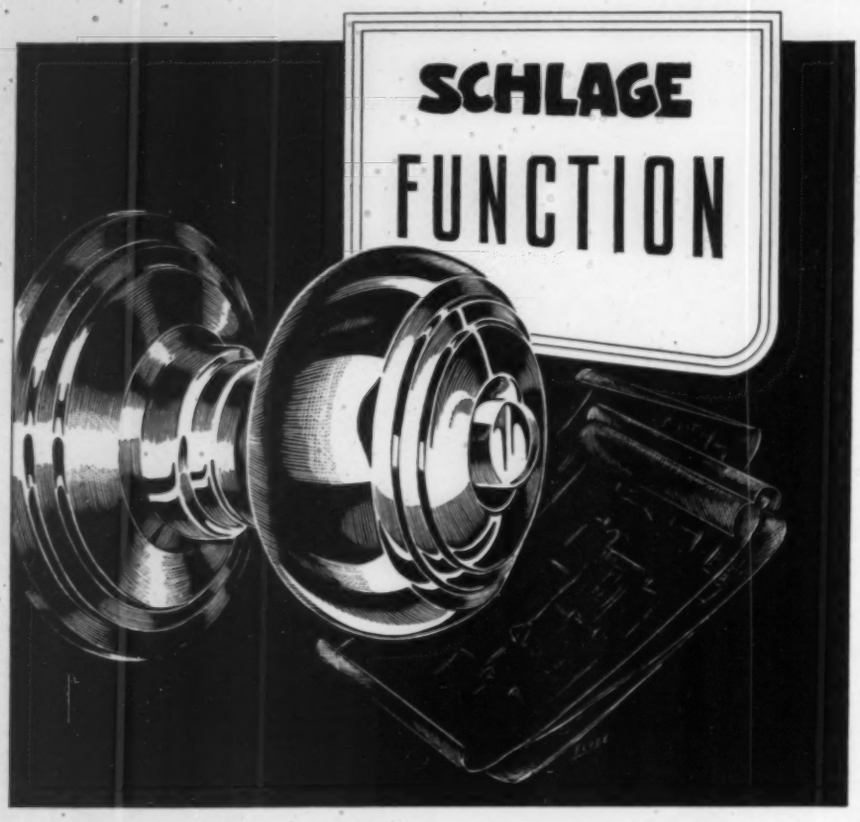
Frank P. Gates, A.I.A., and Raymond Birchett, A.I.A., have announced the formation of a partnership under the firm name of Gates & Birchett, Archi-

(*Continued on page 134*)

CORRECTION

We regret that the Chicago architectural firm mentioned on page 79 of ARCHITECTURAL RECORD for January was erroneously given as Perkins, Will & Barry. The firm name is Perkins & Will, Architects-Engineers.

IMPLEMENT OF ARCHITECTURE



Schlage locks offer security, privacy, utility and convenience. The standardized Schlage cylindrical chassis allows locks to be interchanged as door usage conditions change. The cylindrical design affords a variety of lock functions to provide the perfect operation for every door. For further information see your builders' hardware man, or write direct to Schlage Lock Company, P. O. Box 3324, San Francisco.

SCHLAGE
LOCK COMPANY
SAN FRANCISCO • NEW YORK

SL-12

ORIGINATORS OF THE CYLINDRICAL LOCK

QUICK RELIEF for the BUILDING WIRE SHORTAGE

approved by N. E. C.

..here are some of the facts:

- Worldwide shortage of copper shows strong evidence of continuing through '47, maybe longer, thus prolonging present difficulties on deliveries of the heavier sizes of conductors.
- Because of its high conductivity and excellent record for durability, aluminum is the natural substitute.
- Current carrying capacity of aluminum Performite Building Wire, Type RH, equals that of copper Hazacode, Type R. The 16% difference in conductivity between copper and aluminum is compensated for by the temperature rating spread between the two types of insulation.
- Therefore no increase in conductor or conduit size is required except where runs are so long as to involve excessive voltage drop, or where substituting Type RH aluminum for Type RH copper.
- Aluminum Type RH Wire costs no more than copper Type R because the higher cost of the better grade Performite Type RH rubber is offset by the lower cost per 1000 feet of aluminum.
- The lighter weight of aluminum insulated conductors provides handling, transportation and installation advantages.
- Quick relief for the building wire shortage is now provided on sizes No. 6 Awg and larger Hazard Aluminum Performite Building Wire Type RH, where approved by local inspection authorities.

TO GET ALL THE FACTS, write for technical Bulletin H-407, illustrated above, which gives tables of capacities; comparative weights, data on characteristics; information for quick determination of voltage drop, conductor sizes, circuit length and currents for both aluminum and copper. Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pa.

HAZARD

insulated wires and cables for every electrical use 4983

tects and Engineers, with offices at Jackson and Vicksburg, Miss.

Election has been announced of Harold A. Hallstein to the newly created post of executive vice president of The Austin Co., Engineers and Builders, Cleveland, Ohio.

William T. Herzog and John L. Henderson have announced the establishment of their new firm, Herzog & Henderson Associates, Inc., for the practice of architecture, building and industrial design. Address, 715 Ontario St., Oak Park, Ill.

John Sherwood Kelly, Architect, formerly at 4216 Prospect Ave., Cleveland, Ohio, is now associated with George W. Stickle and Robert W. Stickle in the practice of architecture under the firm name of Stickle, Kelly and Stickle. Address, 2422 Prospect Ave., Cleveland 15, Ohio.

Richard E. Lawrence and Eugene W. Dykes have announced the formation of the firm of Lawrence & Dykes, Architects, with offices at 4542 7th St., S.W., Canton 4, Ohio.

Alfred M. Rinaudot, Architect, has announced the association of C. Wayne Mead, Architect, with his firm and the change of the firm name to Rinaudot and Mead, Registered Architects. Address, Housing Guild Bldg., 7240 Wisconsin Ave., Bethesda 14, Md.

Jas. Gamble Rogers, F.A.I.A., has announced that upon completion of his current work, his practice of architecture and organization will be carried on by the firm of Rogers and Butler (Francis Day Rogers, A.I.A., and Jonathan Fairchild Butler, A.I.A.) at the present offices, 70 E. 45th St., New York 17. Mr. Rogers himself is maintaining offices at the same address as Consulting Architect.

Arthur F. Schwarz, Jr., has rejoined the firm of Mauran, Russell, Crowell & Mullgardt, Architects, and is now a member of the firm. Address, 1620 Chemical Bldg., St. Louis 1, Mo.

Elwyn E. Seelye, Albert L. Stevenson and Burnside R. Value have announced the formation of a partnership to continue the engineering practice of Elwyn E. Seelye & Co., Consulting Engineers, under the firm name of Seelye, Stevenson & Value, Consulting Engineers, with offices at 101 Park Ave., New York 17. Mr. Stevenson has been associated with Mr. Seelye for 30 years in charge of structural design and the design of industrial buildings. Mr. Value has been associated with Mr. Seelye for the past five years, in charge of heavy engineering work such as airports, foundations, hydro-electric plants, dams and tunnels.

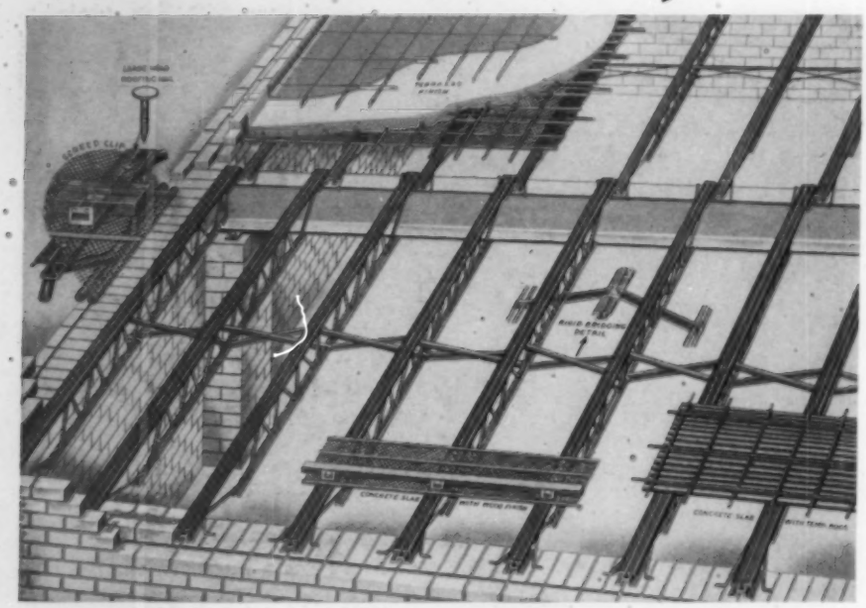
S. Raymond White and Wm. A. Endebrock have announced the formation of a partnership to be known as Endebrock-White Co., General Building Contractors, with offices at 4511 Virginia Ave., Newport News, Va.

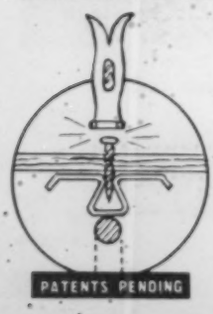
Kenneth E. Wischmeyer and Charles W. Lorenz have announced the formation of a partnership for the practice of architecture under the firm name of Wischmeyer & Lorenz, Architects, with offices at 911 Locust St., St. Louis, Mo.

MACOMBER

V TYPE

BAR JOISTS





Here's the original Macomber Bar Joist with the improved top chord that provides secure nailing for flooring materials. The structural convenience of the open web is maintained. The improved top chord holds nails in a vise-like grip. Result: Universal Application. Sizes are determined from standard Steel Joist Institute Load Tables. Catalog upon request.

STEEL JOISTS ROOF TRUSSES ROOF DECKING

ROOF PURLINS LONGSPANS STEEL SIDING

MACOMBER

CANTON • OHIO

MEMBER OF THE STEEL JOIST INSTITUTE

JOHN BAY SLEE

The death of John Bay Slee, F.A.I.A., early in January deprived Brooklyn, N. Y., of one of its outstanding leaders in the work of slum clearance.

Member of the firm of Slee & Bryson, Mr. Slee was keenly interested in Brooklyn's civic improvement, and the architect of many of the city's best-known buildings, including the courthouse of the Appelate Division of the State Supreme Court and the borough's proposed Civic Center. He was a past president of the Brooklyn chapter of the A.I.A. and a member of the New York State Association of Architects.

Order KOOLSHADE* SUN SCREEN *Now* TO ASSURE INSTALLATION THIS SPRING!

This actual photo shows the complete visibility through KOOLSHADE

For Cooler Comfort All Summer Long, No Shading Device Known Matches KoolShade's Efficiency

KoolShade Sun Screen makes sun-exposed rooms as much as 15° cooler . . . even on the hottest days! Here's how it works: KoolShade blocks and radiates up to 90% of sun heat rays *outside the window!* Yet vision from inside is clear, and every elusive breeze drifts through.

Where air conditioning systems are used, KoolShade reduces operating costs. On new installations an excellent cooling job can be accomplished with less refrigeration equipment when KoolShade is used on all sun-exposed windows.

KoolShade installs like ordinary insect screen . . . requires no maintenance . . . will never rot, rust or rattle . . . insect proof, too! Order now to assure installation before hot weather sets in!

NOTE THESE VALUABLE FEATURES

- *Permanently set at 17° angle for greatest shading efficiency.*
- *Prevents the fading of valuable drapes and furnishings.*
- *Easy and inexpensive to install—will not rot, rust or rattle.*
- *Fits neatly and smoothly into modern architectural design.*
- *Durable bronze KoolShade also effective as insect screen.*

MAIL THIS COUPON TODAY FOR COOLER COMFORT ALL SUMMER! ➔

Partial Installations Can Be Completed If You Act NOW!

Our many customers for whom we made test installations prior to the war, and those who accomplished only a partial installation, can now secure KoolShade for their remaining sun-exposed windows. But we urge you to *act now*—for the supply is limited.

Ingersoll Steel Division
Borg-Warner Corp., Dept. M3
310 South Michigan Ave., Chicago 4, Ill.

Please send free sample and literature, also the name of my nearest KoolShade distributor.

Name.....

Company.....

Address.....

City.....State.....

BW

PRODUCT OF BORG-WARNER

Ingersoll
KOOLSHADE* SUN SCREEN

*Trade Mark Property of INGERSOLL STEEL DIVISION • BORG-WARNER CORPORATION

ARCHITECTURAL ENGINEERING

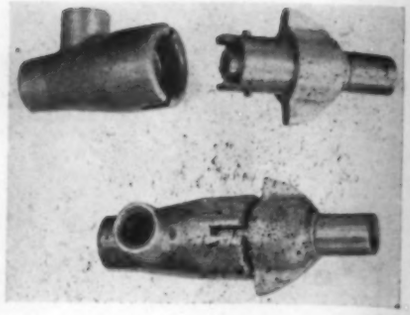
TECHNICAL NEWS AND RESEARCH

(*Continued from page 113*)

sulting in a high heat transmission per sq. ft. of boiler surface. The boiler is of a fire-tube type, having 9 vertical tubes. Into each tube is placed a Spiralator which gives the products of combustion a spinning motion. The unit carries all needed controls: constant level valve, draft regulator, high limit control, aquastat, circulator control, and room thermostat. It bears the approval of the A.S.M.E. Heating Products Div., The Miller Co., Meriden, Conn.

PLUG-IN GAS CONNECTOR

Primarily conceived for use with smaller pieces of commercial equipment, a plug-in gas connector may some day be used in the domestic field for connecting space heaters, refrigerators, and even ranges at outlets conveniently located about the house. Flexible or semi-flexible metallic tubing would replace solid iron pipe now used for conveying the gas, and so facilitate the moving of appliances for cleaning, painting or servicing. American



Convenient plug-in connector for gas units

Gas Association Testing Laboratories have conducted fundamental research and set up a tentative list of specifications for a plug-in connector, to serve as basis for prospective manufacturers. Complete data is available from American Gas Assn., 420 Lexington Ave., New York 17, N. Y.

FIRE PROTECTION

The manufacturers of *Sentry Flame-Gard* products for wood and textiles announce a plastic roof paint for shingles and a compound which, according to laboratory tests, makes ordinary paint effective for fire resistance. The plastic roof paint, available in several colors, can be used with Sentry Flame-Gard for Wood, which also serves as a sealer. This combination reportedly provides exceptional protection from fire, termites, and weather. Sentry Products Corp., Dept. AR, 436 W. Arbor Vitae, Inglewood, Calif.

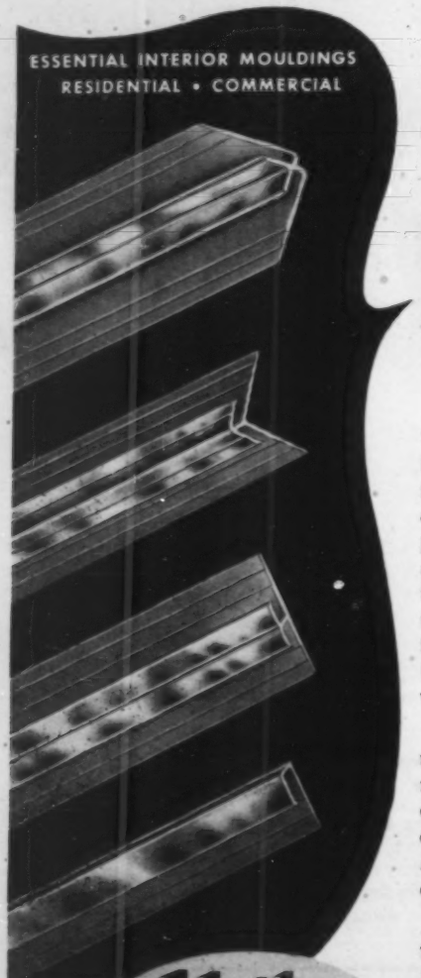
AIR CLEANER

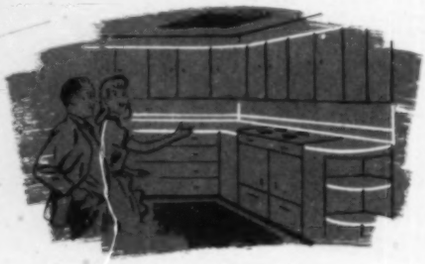
Utilizing the simple electrical principle that objects with like charges repel each other and those with unlike charges exert attraction, *Precipitron* electrostatic air cleaner is said to remove 85 to 90 per cent of all dust in circulating air streams within the house. Air to be cleaned first passes through an electrostatic field created by a "gate" of 7 highly charged hair-thin tungsten wires and 8 grounded aluminum tubes, spaced alternately. The air then enters the "dust collecting" cell which consists of 69 aluminum plates, alternately charged negative and positive, and set edgewise to the air stream. The charged dust particles are attracted to oppositely charged plates and clean air leaves the unit. High voltage direct current for the unit is produced from standard house current by an energizer consisting of electronic tubes, transformer, and capacitor. Cleaning the dust-collecting plates is accomplished by turning a handle which releases a water spray. This flushing, which takes approximately 3 minutes, is said to be required about as often as a refrigerator requires defrosting. Standing 52 in. high, 27 in. wide and 34 in. deep, the Precipitron

(*Continued on page 138*)

Win Praise and Higher Appraisal

SPECIFY KINTRIM FOR MORE *Visible Value*





The graceful and lustrous beauty of KINTRIM catches your client's eye—accents features of interior design that, *otherwise*, might go unappreciated. And KINTRIM affords you greater freedom along modern, sweeping lines . . . For these metal mouldings also have the structural precision you need and want for more attractive, practical use of: (1) Wallboards, and (2) Linoleums for walls, counters, and floors.

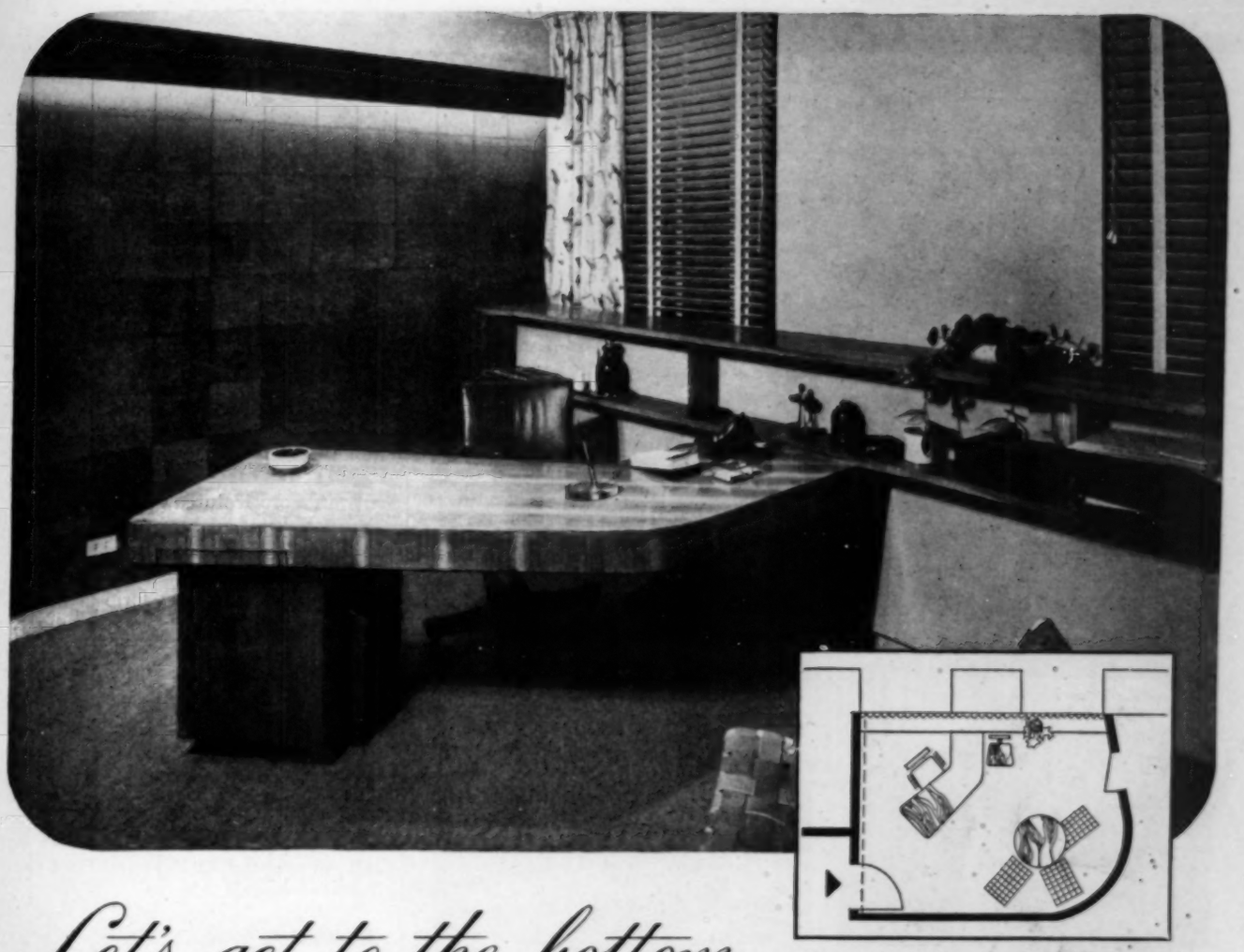
For "visible value"—to fit covering materials snugly—KINTRIM is precision-made in a complete range of gauges. And every section of KINTRIM Stainless Steel embodies Kinkead's refinement—the *Rolled Edge*—to protect hands and clothes from snagging.

KINTRIM beauty and utility can add to the recognition you already enjoy. *Specify it*—as *the finishing touch* for more "visible value!"

kintrim
Reg. U. S. Pat. Off.

Detailed data on KINTRIM *Stainless and Aluminum designs may be had promptly. Write our* "Architects' Dept."

KINKEAD INDUSTRIES
INCORPORATED
440-450 W. SUPERIOR ST., CHICAGO 10, ILL.



This is the designer's sketch drawn by Donald Deskey Associates for this modern office of Mr. E. P. Shuneman, manager of the Bigelow showroom and sales office, Merchandise Mart, Chicago.

Let's get to the bottom

OF OFFICE PLANNING ... WITH BIGELOW RUGS

Here's a manager's office that shows what good planning can accomplish. In a relatively small area, modern design has created ample working, conference and display space, a feeling of dignity and roominess. When you get right down to it, there's one thing that gives this office . . . or any office . . . beautiful, yet quiet simplicity. That's the floor covering of Bigelow Contempora.

Bigelow Contempora is a luxuriously sculptured carpet that adds richness and color to office design. It's Lokweave too . . . made by the special Bigelow weaving process that means no installation waste. Lokweave carpeting stands up longer, is durable and thus truly economical. Bigelow's Carpet Counsel will help you choose from a complete line of better-than-ever floor coverings.

BIGELOW CURLWEAVE
A new Lokweave development

BIGELOW WEAVERS

BIGELOW-SANFORD CARPET CO., INC.

140 MADISON AVE., NEW YORK 16, N.Y.

(*Continued from page 136*)

can be used either in conjunction with a warm air heating system or with an independent air-circulating or air-conditioning system. Westinghouse Electric Corp., 306 Fourth Ave., Box 1017, Pittsburgh 30, Penn.

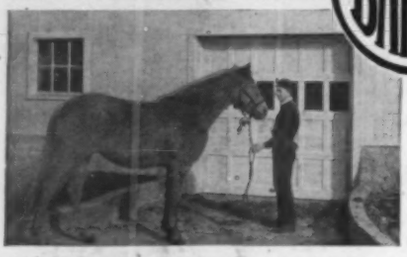
FLOOR OUTLETS

Two new service fittings have been announced as component parts of the *Nepcoduct* underfloor wiring distribution system. Their housings are stamped from heavy brass with simplified contours and a brushed finish. Fitting No. 7903 is for high-potential light and power wiring; No. 7904, for telephone, buzzer, and low-potential wiring in plant offices and office buildings. Either model is quickly wired and assembled with a single screw through the housing top. The one-piece housing double-locks in the flange base, eliminating the possibility of shearing off wires. National Electric Products Corp., Chamber of Commerce Bldg., Pittsburgh, Penn.

A beautiful residence garage using two sizes of *standard* Barcol OVERdoors.

A *standard* Barcol OVERdoor in an ice-manufacturing plant storeroom.

BARCOL



This modernized horse barn employs *standard* Barcol OVERdoors for space and heat saving.

Small manufacturing plants, service garages, and the like have *standard* Barcol OVERdoors.

Standard Barcol OVERdoors

SOLVE LOTS OF PROBLEMS —IN LOTS OF PLACES...

Only the Barcol OVERdoor
HAS ALL OF THESE FEATURES
1. ROLLER-CRANK CLOSING ACTION.
2. SELF-LATCHING BOLTS.
3. TWIN-TORSION TAILORED SPRINGS.
4. CONTINUOUS VERTICAL TRACK BRACKETS.

Sturdy construction, readily adaptable design, and ease of operation make the *standard* Barcol OVERdoor useful for many other applications in addition to its regular use on residence garages. A few of these are suggested in the pictures above. Remember — consider a *standard* Barcol OVERdoor whenever you have an unusual or difficult door problem that needs solving. *Consult your Barcol representative.*

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

BARBER-COLMAN COMPANY
102 MILL ST. • ROCKFORD, ILL.

STEEL INSULATION

Ferro-Therm insulation of light-gauge steel is once again becoming available on the market. Crimped every 4 in. for added stiffness, this insulation is stapled in place and weighs only 0.25 lb. per sq. ft. Because of its thinness, five sheets can be cut at a time and a carpenter reportedly can install an average of 800 sq. ft. or more in a day. This insulation is said to act as an effective fire arrester, and as a barrier to rats and termites. It is coated with a tin alloy for corrosion resistance. American Flange and Mfg. Co., 30 Rockefeller Plaza, New York, N. Y.

AWNING WINDOWS

Window panels consisting of horizontal sashes hinged at the top to swing outwards are featured in the *Gate City Type "O" Window*. Made of wood, these "awning" windows can be constructed by any millwork shop, following blueprints and instructions furnished with the hardware by the manufacturer. Where desired, fixed lights may be used in combination with the window, either above, below, at the side, or within the individual tier. Advantages are said to be: (1) elimination of need for draft shields; (2) protection for screens and storm sash, which are installed inside the building; and (3) good ventilation in rainy weather, when windows may be left open. Gate City Sash and Door Co., Fort Lauderdale, Fla.

ALUMINUM WINDOWS

Manufactured in 25 standard sizes, a new double-hung aluminum window with either 2 or 4 lights is now on the market for residential construction. It is equipped with spring type sash balances, and designed for installation by an experienced operator in only 15 minutes. Double-strength glass is set with Everseal, requiring no puttying. Window is said to cost no more than wood or steel windows of similar design, and to be adaptable to all types of house construction — frame, brick, brick veneer, and poured concrete. Windows are shipped to jobbers in knock-down form, 5,000 sashes or frames to a carload. Jobbers do the assembling and glazing. Premier Metal Products Corp., Phoenix, Ariz.

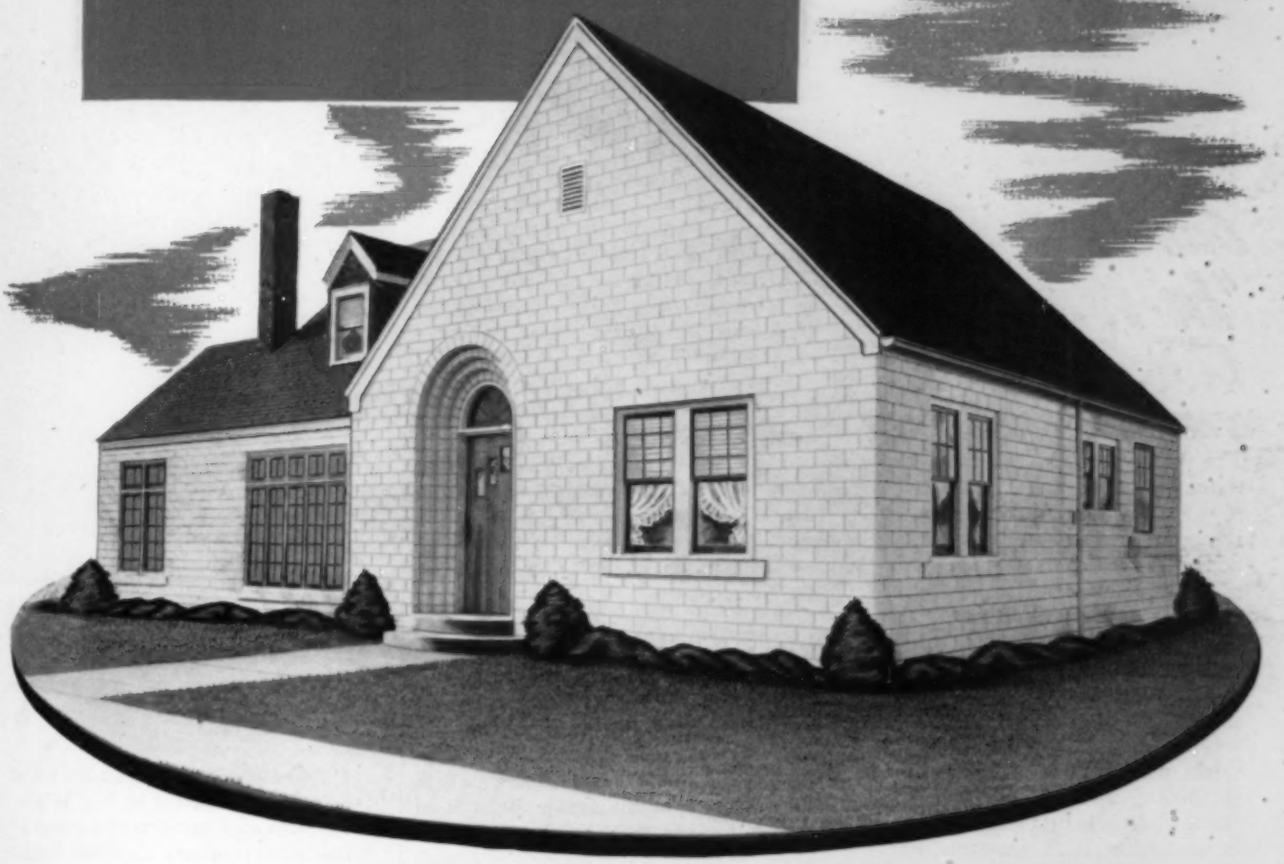
ROOF COATING

A new reflective roof coating, *Richlume*, is said to have unusual insulating, waterproofing, and fire-resistive qualities when applied by brush or spray to tar-and-gravel tar paper, built-up asphalt, or composition shingle roofs. Richlume is not an aluminum paint but a coating developed for use on bituminous material only. A new plastic vehicle for the aluminum pigment produces a close bond with roofing

(*Continued on page 140*)

"First with the Finest"

ARKETEX



FOR COMFORTABLE LIVING

Modern construction methods for today's modern comfortable living demand modern material — Arketex Ceramic Glazed Structural Tile combining three-fold requirements of beauty, permanency, and economy.

Arketex is beautiful! Available in a range of bright colors from delicate tints through bold, full-bodied tones.

Arketex is permanent! The lustrous, non-fading colors keep their original freshness forever . . . will not craze, crack, scar, or mar.

Arketex is economical! Unlike ordinary building materials, it is a permanent wall and finish all in one — the first cost is the only cost. No periodic painting or refinishing necessary.

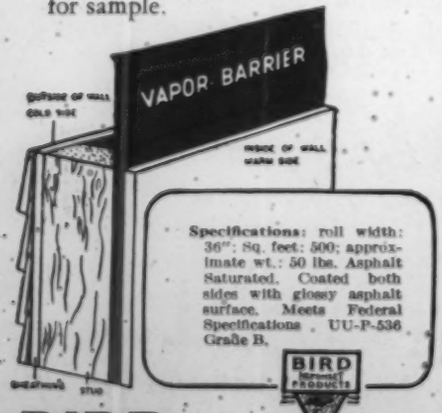
Practical architects and builders know their clients will recognize and appreciate good judgment in construction materials. That's why it pays to — Always specify Arketex — *first with the finest!*

ARKETEX CERAMIC CORPORATION • BRAZIL, INDIANA

VAPOR CONDENSATION YOU CAN SEE May Be Funny . . .

but "In-Wall" Condensation IS NO LAUGHING MATTER

The same vapor that "steams up" windows can make insulation soggy and impair its efficiency if it condenses within walls. Condensation is the deadly foe of insulation. Uncontrolled condensation can cause wall stains, paint peeling, hasten structure rot. A sure way to lick "in-wall" condensation and give life-long protection to insulation is with a *separate* vapor barrier. Standard with architects the country over is Bird Neponset Black Vapor Barrier. Applied on the warm side of insulation, Bird Neponset Black safely repels vapor, keeps insulation at peak efficiency. Costs only about $20. for a $10,000 building. Consult Sweet's Architectural file, 9b-2, or write Bird & Son, inc., 156 Wash. St., E. Walpole, Mass., for sample.


VAPOR BARRIER
OUTSIDE OF WALL COLD SIDE
INSIDE OF WALL WARM SIDE
Specifications: roll width: 36"; Sq. feet: 500; approximate wt.: 50 lbs. Asphalt Saturated. Coated both sides with glossy asphalt surface. Meets Federal Specifications UU-P-536 Grade B.
BIRD
SHEATHING
STUD

BIRD & SON, inc. CHICAGO NEW YORK SHREVEPORT
EAST WALPOLE, MASS.

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 138*)

materials without penetrating beneath the surface. In addition, it is claimed that the vehicle remains flexible and allows the coating to expand and contract with the roof under all weather conditions. Insulating qualities result from its reflective surface. Up to 80 per cent of sun's rays are reflected, according to laboratory reports, resulting in as much as 15 per cent cooler temperatures within buildings. Richcraft Co., Chicago, Ill.

DECORATOR WALLS

New combinations of materials for the decorative treatment of walls have recently been exhibited by U. S. Plywood Corp. Added to its line of *Flexwood* and *Flexmetl*, a paper-thin wood veneer bonded to fabric or flexible metal, are *Checkwood*, jewel-cut squares of plywood on fabric backing; *Flexglass*, rectangles of mirrored and patterned glass on fabric backing; and *Leatherwall*, colored lengths of leather designed for walls and ceilings in quilted, corded, or floral patterns. Another innovation is *Leatherfloor*, which employs cowhide in 4-, 6-, and 8-in. squares as a floor covering. The leather is preserved and hardened with an invisible plastic coating. United States Plywood Corp., 55 W. 44th St., New York 18, N. Y.

LADDER LEVELER

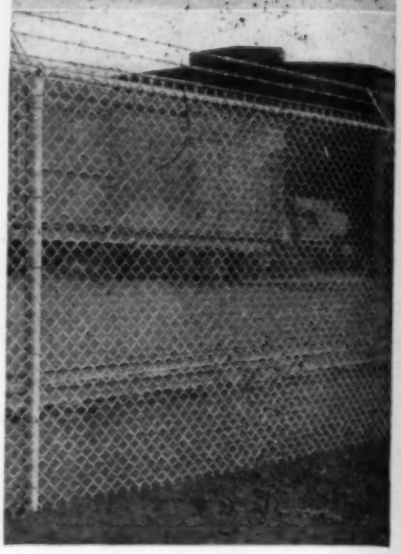
For use on sloping terrain, *Shur-Foot Leveler and Locking Base* automatically levels the ladder laterally on a half-circle of steel pipe and provides abrasive shoes, on ball and socket joints to assure a firm grip. Weight of the ladder locks it in place after it has been leveled. When the ladder is lifted in moving to a new position, the Shur-Foot unlocks automatically. This base is furnished in 4 sizes, to accommodate ladder widths from 16 in. to 24 in. Akron Steel and Sales, Inc., Akron, Ohio.

GAS HEATER

The Rheem *Series 70* storage water heater is a completely automatic unit built to operate on any of the better grades of domestic fuel oil. If an oil-fired central heating unit is already installed, this heater in most cases can utilize the same oil supply. All parts are protectively housed in a steel jacket finished in baked white enamel. A 2 in. thick inner jacket of Fiberglas holds maximum heat within the storage tank. The patented pot-type burner is said to operate on a flame so small that it permits a new low in oil consumption. Oil input to both main burner and pilot fire is monitored at all times. Installation requires only a hot and cold water

(*Continued on page 142*)

How to SOLVE YOUR CLIENTS' FENCE PROBLEMS!



There are a lot of points to be checked in specifying fence—and Anchor Chain Link Fence's *four exclusive features* hold the answer to all of them. Here's why an Anchor Fence will insure your clients' maximum protection for long years of service:

1. *Deep-Driven Anchors* hold the fence permanently erect and in line, in any soil or weather, yet permit easy relocation where necessary. 2. *Square Frame Gates* are amazingly free from warping and sagging. 3. *U-Bar Line Posts* are self-draining, rust-free and rigid. 4. *Square Terminal Posts* improve strength, durability and appearance.

SEND FOR YOUR FREE COPY OF OUR BOOK, "Anchor Protective Fences," for your A.I.A. File 14-K. It's both a catalog and specification manual. Shows many types and uses of Anchor Chain Link Fence . . . pictures installations for many prominent companies and institutions . . . contains structural diagrams and specification tables. Just ask for Book No. 110. Address: ANCHOR POST FENCE DIV., Anchor Post Products, Inc., 6600 Eastern Ave., Baltimore 24, Maryland.

Anchor Fence
Nation-wide Sales and Erecting Service

Visibility Unlimited——

IT'S human nature to *look* when there's something to see and a modern, open-view front makes it easy for shoppers to look right into the store. Immediately, the attractive, well-lighted interior is revealed with its friendly atmosphere and tempting array of things to buy.

There's *selling power* in modern design and the store architect is keenly aware of it. He artfully combines beauty with utility and makes it pay off in increased patronage. We are privileged to work with the country's outstanding designers and to execute their ideas in complete Brasco Construction.

A Complete Line for Every Design

The Brasco line of unified members, in stainless steel or aluminum, blends harmoniously with either new or standard building materials and beautifies the entire front. Engineered for complete safety and expertly fabricated, Brasco meets every demand for modern, trouble-proof store front construction, easily installed.

Brasco MODERN STORE FRONTS

BRASCO MANUFACTURING CO.

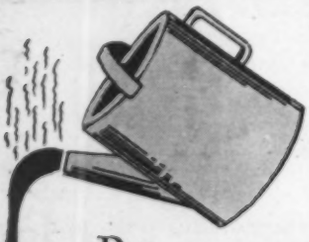
HARVEY · (Chicago Suburb) · ILLINOIS

National Distribution Assures Effective Installation

KEEP THOSE CONCRETE EXPANSION JOINTS SEALED ALL YEAR 'ROUND!

SPECIFY

THE ORIGINAL Para-Plastic
REG. U. S. PAT. OFF.
HOT-POURED RUBBERIZED SEAL



PARA-PLASTIC is the ORIGINAL hot-poured rubber seal for concrete expansion joints.

PARA-PLASTIC remains flexible all year 'round. Its elasticity is permanent in any temperature without breaking its bond with concrete.

PARA-PLASTIC is the positive and permanent top seal for concrete expansion joints all year 'round against the infiltration of water.

Write for further technical information

"STICK" WITH THE ORIGINAL ALL YEAR 'ROUND

See Our Catalog in Sweet's

SERVICISED PRODUCTS CORP.
6051 West 65th Street Chicago 38, Ill.

(*Continued from page 140*)

connection, a flue connection, and an oil supply. Once the heater has been lighted and adjusted, the automatic thermostat control takes over. Appliance Div., Rheem Manufacturing Co., 570 Lexington Ave., New York 22, N. Y.

SELLING AIDS

Sliding trays of transparent plastic are now being offered for better visual presentation of store merchandise in stock. These storage trays may be recessed in wall fixtures, used in groups as special built-in showcase units, or supported by brackets on counter tops. Trays, which are of one-piece construction with sliding covers, vary in size from 9 by 12 by 2½ in. to 11½ by 15 by 4 in. Advantages claimed are compact storage, eye-appeal, and more rapid selection of merchandise. Merchandise Presentation, Inc., 42 East 51st St., New York 22, N. Y.

MOVIE PROJECTOR

The new *Victor Model 60* sound projector for 16 mm. films comes in a luggage-type aluminum carrying case. The machine is a multi-purpose unit for either sound or silent film and may be used with a record player or as a public address system. It includes reverse operation and has the advantage of still picture projection. Among new features are a lever device for quick centering of the picture on the screen, and separate controls for both bass and treble, giving better sound control. Victor Animatograph Corp., Davenport, Iowa.

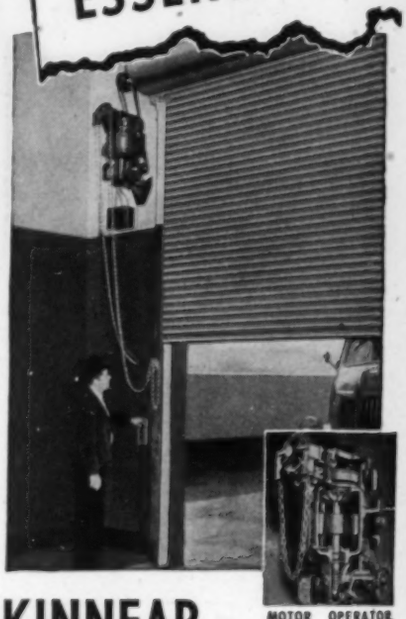
FLUORESCENTS

A packaged line of commercial fluorescent lighting equipment has recently been announced under the name of *Light-in-Line*. Bases and enclosures for 16 fixture combinations are packaged individually to cover a full range of lighting intensities. All can be mounted by the four standard mounting methods. Among models are the 2-light 40-watt, 2-light 100-watt, 4-light 40 watt, and 4-light 100-watt combinations. Moe-Bridges Corp., Sheboygan, Wis.

STANDARDS

A list of 864 standards approved for the national use of industry has recently been released by American Standards Association. In each case they represent general agreement on the part of maker, seller, and user groups as to the best current industrial practice. For an index of these standards, write American Standards Association, 70 E. 45th St., New York 17, N. Y.

Pinning it down to ESSENTIALS



KINNEAR ROLLING DOORS

Advantages of Kinnear Rolling Doors are quickly apparent: by rising vertically into a compact coil above the lintel, they save floor, wall and ceiling space . . . open out of reach of damage by wind or vehicles . . . require no "clearance" area for operation . . . clear the entire doorway when opened. And Kinnear's famous interlocking-steel slat construction (proved by 50 years of satisfactory performance) assures *extra* protection against fire, intrusion, accidental damage, and the elements. Any size, for old or new construction. *Write!*

THE KINNEAR MANUFACTURING CO.
Factories: 1860-80 Fields Ave., Columbus 16, O.
1742 Yosemite Ave., San Francisco 24, Cal.
Offices and Agents in All Principal Cities

Saving ways in Doorways

KINNEAR ROLLING DOORS

A.W.FABER'S CASTELL LOCKTITE

the professional man's refill drawing pencil which embraces 7 exclusive features

for drawing
sketching
retouching

CLEAN—No need to touch the lead and get graphite particles or dust on your fingers or smudges on your drawing. Hold point to paper, press button, lead can be adjusted by upward or downward movement of hand.

NON-BREAKAGE—An unusually fine precisioned collet supports the graded lead all the way around and prevents it from breaking or snapping off under greater than normal pressure during the pointing or sanding process or when in actual use.

NON-SLIPPAGE—The same precision collet holds the lead in a bulldog grip. Lead positively cannot slide back into the holder.

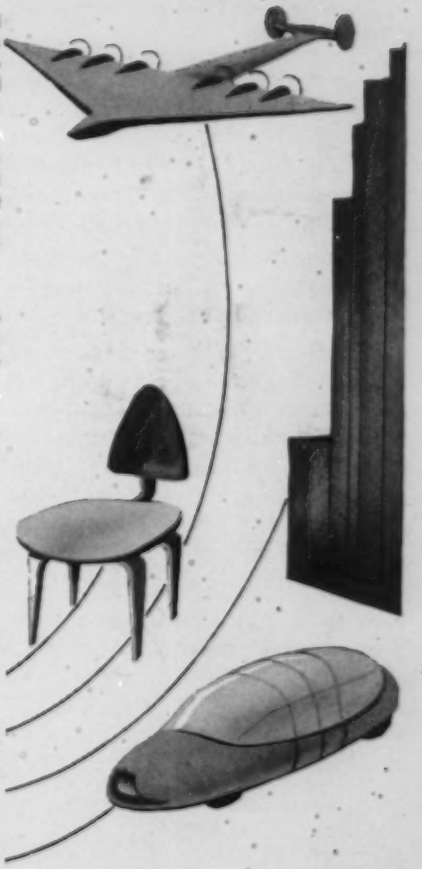
QUICK—Just press your thumb on the button release. Eliminates two-hand screwing or turning operation.

STURDY—Finest quality plastic and metal used in every part, exposed metal parts gold plated, all expertly assembled.

BALANCED—Every part is well proportioned giving you a drawing instrument which is perfectly balanced in your hand.

GUARANTEED—If your Castell Locktite does not perform perfectly, return it to your dealer or to us for exchange immediately.

Holds all standard makes of refill graded drawing and retouching leads. We recommend WINNER Techno-TONE 1930.



only $1 at your Art Supply House, Drawing Material Dealer, Blue Printer, Stationer or Photographic Supply Shop.

A.W. FABER INC.
NEWARK, N.J.